SIGNAL ACHIEVEMENT - LUZON

An Official Signal Corps History

Prepared by United States Army Signal Corps, Southwest Pacific Area

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This is one of two Official Signal Corps Histories on the Luzon operations. The story of Signal Corps photography on Luzon is told in EXPOSURE UNDER FIRE.

FOREWORD

When a Commander-in-Chief packs up and moves his headquarters, the strain upon signal facilities is intense. When he keeps moving it, that strain is multiplied many times. And when he not only keeps moving, but keeps his headquarters abreast of his advance elements, the ingenuity of communications soldiers is taxed to the very utmost.

During the drive on Manila in the Luzon Campaign, General MacArthur's Headquarters were frequently in front of lower echelon command posts. The magnitude of the signal communications mission for a roving headquarters the size of MacArthur's was enormous.

But while the Manila movement was perhaps unique in that sense, it was ideal for study from a signal standpoint because communications followed the classical axis from highest headquarters to lowest.

A brief summary of the tactics and elements employed is necessary to an understanding of the communications problem. Fluidity of the operation resulted in some irregularities or overlapping of corps boundaries and resultant changes in the assignment of divisions, but basically the action was as follows:

Sixth Army with I and XIV Corps and 13th Armored Group landed in the Lingayen Bay area beginning 9 January 1945.

I Corps hit the eastern beaches of Lingayen Gulf, north and east of XIV Corps in the Damortis-San Fabian area, mopping up that sector and sealing off the bulk of the Japs in northeastern Luzon with the 43rd, 6th, 25th and, later, the 32nd and 33rd Divisions. The sensational liberation of prisoners 25 miles behind the enemy lines at Cabanatuan was carried out by elements of the 6th Ranger Battalion, directed by Sixth Army.

XIV Corps hit the southern beaches of Lingayen Gulf, where the Japs had landed more than three years before with the same mission and where they least expected us. The 37th Division fought its way south along the main highway to Manila. The 40th Division stopped to drive the enemy into the mountains west of the Fort Stotsenberg area. The First Cavalry spearheaded down the left flank of the 37th like an arrow aimed at Manila, not stopping to mop up, but carrying the fight to the Japs in the capital city first. Its right flank was covered by the 37th and its left flank by the 6th Division which ran into fierce opposition in the foothills to the east.

The 11th Airborne Division landed at Nasugbu, Cavite, on Batangas, south of Manila, engaging the enemy's rear, as troops under XIV Corps approached Manila from the north and east. Elements of this division also accomplished the spectacular raid behind the Japanese lines to free the Los Baños prisoners.

XI Corps landed on the west coast of Luzon. Its 38th Division drove inland to Dinelupihan, cutting off Bataan. Under it, the 503rd Parachute

Infantry Regiment and the 34th Regimental Combat Team captured Corregidor and the 151st Infantry Regiment took Mariveles.

This history is concerned chiefly with the main drive on Manila, digressing to give accounts of associated Luzon operations where they are of especial historic value or typical of Signal operations throughout the Island, since an account of the activities of all elements on Luzon would be largely repetitious and should be available, for the record, in unit histories.

Detailed as the following pages may be, they do not describe Signal Corps activities in their entirety. A substantial proportion of them are of a nature that cannot be explored in an unclassified history such as this.

To clarify certain text references, a glossary, of Signal Corps nomenclature and other terms that might not be universally familiar, is incorporated at the end.

ESPIONAGE

One night shortly after the fall of Corregidor in 1942, a radio intelligence operator, sitting at his receiver in Townsville, Australia, picked up an interesting message.

A Royal Australian Air Force operator in Darwin heard the same message, and so did an RI operator in San Francisco.

Transmitted in clear text it said:

> CQCQ FROM PK1JC AT JAVA STOP PLEASE LISTEN TO CALL IMPORTANT MESSAGE TO GENERAL MACARTHUR FROM PK1JC AT JAVA STOP PLEASE ANSWER ON 40 METERS GA GA....THIS MESSAGE FOR GENERAL MACARTHUR IS VERY SECRET STOP....MABUHAY MABUHAY MABUHAY WILL LISTEN FOR KGEI AT 2:00 A.M. AND 4:30 A.M. PACIFIC WAR TIME WITHIN THE NEXT THREE DAYS STOP HAVE VERY IMPORTANT CODED MESSAGE FOR YOU STOP SIGNED PK1JC.

The message was interesting for more reasons than one. The giving of a specific location, Java, made it suspiciously like a Jap trick. But was the message actually from Java? Mabuhay was not Japanese, it was a Filipino word of greeting.

A reply from General MacArthur was broadcast by KGEI.

The following day, 29 June, another message came from the mysterious PK1JC. It had a clear text introduction saying that the rest would be enciphered on an M-94 cipher device and the key to the system would be the first name of the wife of a certain captain in the United States Army Signal Corps. It was signed by the Dutch name Kranapoeng.

The captain mentioned was found to have been listed as missing in action on Bataan. His wife's name was obtained and the enciphered message broken as follows:

> DETACHMENT OF FIL-AMERICAN FORCES WHICH HAVE NOT SURRENDERED ARE ACTIVELY RAIDING NORTHEAST COAST BARRIOS AND TOWNS OF PANGASINAN INCLUDING DAGUPAN STOP REQUEST INFORMATION IS MY INSURANCE POLICY FOR TEN THOUSAND DOLLARS IN THE NATIONAL SERVICE LIFE INSURENCE WHOSE JOINT....(garbled)....RECOMMEND AWARD OF DISTINGUISHED SERVICE CROSS TO FIRST LT B---------- P------ FOR A SERIES OF MERITORIOUS SERVICES AND EXTRAORDINARY GALLENTRY IN ACTION

The enciphered signature at the end was that of an American Army lieutenant colonel who, with the Signal Corps captain, had escaped from Bataan, assembled a radio transmitter "out of junk", as he put it, and set it up on Luzon.

Those messages marked the reestablishment of Signal Corps operations on Luzon, operations that were to grow stealthily and steadily, until, with General MacArthur's return, they mushroomed into an elaborate communications network.

The whole story of expionage communications from Luzon would fill a volume that, for security reasons, cannot yet be written. Its barest highlights are presented here as a fitting introduction to the part the Signal Corps played in the recapture of the Island.

The importance of Signal Corps work in the espionage and guerilla activities on Luzon is typified by one of the first messages from the lieutenant Colonel. It said:

> I HAVE TODAY COMMENDED SECOND LIEUTENANT J---- C----------, SIGNAL CORPS, RESERVE P.A. AND HIS MEN FOR DISPLAYING TECHNICAL SKILL OF THE HIGHEST DEGREE AND FOR EXTRAORDINARY RESOURCEFULNESS IN PREVENTING OUR RADIO APPARATUS FROM FALLING INTO ENEMY HANDS AND SUBSEQUENTLY BEING ABLE TO CONTACT YOUR HEADQUARTERS.

The underground station began pouring to General MacArthur a wealth of information about events after the fall of Corregidor, including first reports of the terrible "Death March" of the American prisoners of Bataan.

On 6 July, this message was received:

> VARIOUS PAMPHLETS DEMANDING MY SURRENDER AND THAT OF MY COMMAND HAVE BEEN DROPPED BY PLANES SINCE THE FALL OF CORREGIDOR IN LOCALITIES WHERE THEY SUSPECT WE MAY BE FOUND STOP ONE OF THEM STATES JUNE 30TH AS DEADLINE STOP FAILURE TO COMPLY WILL MEAN THAT I SHALL BE SHOT ON SIGHT STOP RECENTLY DEADLINE HAS BEEN EXTENDED TO AUGUST 15TH STOP ALL THESE DEMANDS FOR SURRENDER I HAVE CONSISTENTLY IGNORED STOP.....

To protect him, his transmission was limited to a bi-weekly schedule, Mondays and Thursdays, with prearranged frequencies of 6970 and 6820 kilocycles.

But on 11 August, four days before the deadline for his surrender, he sent this message:

> INTELLIGENCE REPORTS HAVE REACHED ME THAT THE ENEMY IS CLOSING IN ON MY RADIO STATION BY THE USE OF GONIOMETRICS....

No more traffic was ever received from him. He was later reported captured. The Signal Corps captain escaped and resumed activities elsewhere. Whether direction finding led to the capture has never been determined, but two years later guerilla stations operated under the very

noses of the Japs, even in Manila itself, and none was ever captured by direction finding.

Until October, 1942, Luzon was silent again so far as friendly radio intelligence was concerned. Then another American lieutenant colonel, of the 26th Cavalry, who had escaped Bataan with two other officers and forty enlisted men, first contacted San Francisco with a junk set from Northern Luzon. He worked out a cipher system with its original keys in the serial numbers of three of his enlisted men.

Two-way advantage was taken of this station. It not only sent out valuable intelligence but was used as a news agency to bring the Filipinos the truth about the war. It maintained communications regularly until March, 1943. Then the Japs began closing in on the lieutenant colonel. He abandoned a broken down transmitter where the Japs would find it, hoping they would consider the search over. But he finally had to go off the air until June while he moved his station.

When he came back on, his messages began to grow incoherent and his cryptographic errors greatly increased. The hardships of his fugitive life were obviously affecting his physical and mental condition. They did not, however, affect an extraordinary sense of humor he displayed throughout his contacts. He waxed indignant, in messages, over the fact that, while two of his colleagues had been captured through a measly award of 20 pesos, no reward had been offered for him.

By August, his messages became so distorted it was suspected that a Japanese might be operating the transmitter. As authentication signs, the suspected officer was asked questions such as the color of his wife's eyes and her complexion, and the names of his children.

He replied that his wife was "a dishwater blonde" with yellow cat eyes", then named his four children and added, "If any others, name and origin unknown". His reply concluded:

DON'T WORRY, I'M GENUINE AND FREE AND ALWAYS WILL BE.

It was not to be so. On 29 August he receipted for a message from General MacArthur praising his courage and urging him to carry on with utmost caution. His station was never heard from again. A message from MacArthur awarding him the Distinguished Service Cross went unacknowledged.

Enemy documents seized at Leyte when the American forces returned to the Philippines revealed that the Japanese captured him, and took him to their notorious torture capitol, Fort Santiago. They also obtained his cipher system, according to the documents.

Meantime, back in Brisbane, Australia, the 978th Signal Service Company was activated on 1 July 1943 to carry out Signal phases of espionage in the Philippines.

Eighty per cent of its strength were Filipino volunteers for extra hazardous duty, from the United States. The rest were highly trained American soldiers, mostly cryptographic specialists. Functions of the company were so secret that even key officers of the Office of the Chief Signal Officer knew it only as a meaningless number. This security was maintained until long after the invasion of the Philippines. In the Islands themselves, secrecy was poor. Agents had to rely too completely on whole populations of sympathetic Filipinos for protection, and the arrivals of submarines with personnel and supplies were known far and wide within a short time.

Training was the initial mission of the company. In November, 1943, it began training intelligence units that were to be smuggled into the islands. They learned radio operation, maintenance and repair. They were taught cryptography and how to manufacture cryptographic systems by memorizing double transposition phrases in case their other crypt systems were compromised. They were schooled in weather forecasting and reporting, and aircraft warning. Signal Corps Photographic Service gave them camera training.

These were not Signal Corps units. They received the Signal training as part of a rounded program.

Members of the 978th itself were trained in jungle living, guerilla tactics and combat, in preparation for the more active part they were to take. The Filipino personnel, in particular, absorbed the training avidly. They were eager to be sent on their dangerous missions.

Everyone was taught guerilla procedure, which was in a class by itself. Most of the guerilla operators were not army personnel and those who were had their last experience with Z signals. To confuse the enemy, no effort was made to change this procedure until shortly before the invasion. Precedence designations, as known in the Army, were never used, classifications such as "rush urgent" and "rush immediate" being employed instead. Since most of the guerillas were without Q signals, an enciphered query had to be sent when a message failed to break. Consequently, code clerks spent as much as 24 hours trying the possibilities of a stubborn double transposition.

The terminal station, KAZ, at Adelaide River, Australia, employed 300-watt Phillips transmitters at first. In January, 1944, these were replaced with three SCR-399-Bs, boosting the power to about 500-watts apiece. The station was set up at Hollandia, 20 September 1944, after General Headquarters moved there from Australia.

For several months after the capture of the Cavalry officer, communications with Luzon were carried on by messengers operating out of Panay, Mindoro Mindanao and Negros.

Then, in December 1943, came the first of the secret movements for which the men of the 978th had been waiting. A Technician Third Grade who professed to have a knowledge of radio, was taken out of the code room and placed in charge of a group of volunteer Filipino members of the company, and they quietly disappeared from the area.

They came up from beneath the sea in a submarine shortly afterward off a secluded beach of the Island of Mindanao. From Mindanao, the party made its way to Samar by sailboat, and in June 1944, its commander sent the T/3, now a second lieutenant with a guerilla commission, and two Filipinos of the 978th Detachment, to southern Luzon, again by sailboat.

The former T/3's bamboo commission, as the guerilla ranks were known, was confirmed retroactive to December, 1943, by Headquarters, United States Army Forces in the Far East, in March, 1945, after the recapture of Manila. He was also given a promotion to first lieutenant retroactive to June 1944.*

At that time, he admitted to a superior officer that, although he had claimed to be a radio technician so as to be given the dangerous assignment, he knew virtually nothing about radio except what he had learned after reaching the Philippines. That, however, had proved to be considerable.

Meantime, the intelligence party had picked up in Mindanao a U.S. Army Air Force radio operator who had eluded the Japs and obtained a bamboo commission as first lieutenant. They sent him into Eastern Luzon to set up a station, in May, 1944.

Both transmitters on Luzon could reach KFS, Mackay radio station in San Francisco, but not Australia. They relayed through Samar. Regular schedules were set up between the two Luzon stations, and Samar guarded both 24 hours a day.

The two of them, in turn, acted as relays for several smaller sets they had carried into Luzon with them and cautiously distributed to guerilla units. The Signal Corps radio net on Luzon was growing within the Jap lines as the tactical net outside was tightening around them.

The 978th officer had unstinted praise for the equipment with which he operated, a 12-watt Australian set known as a 3-BZ. It consisted of three units---speaker, transmitter and receiver, plus four storage batteries and a gasoline charger. He brought along a supply of gasoline, which the guerillas replenished from raided Jap stores. Being bulky, the set could only be used in a comparatively safe spot.

The transmitter was equipped with six crystal sockets. Frequency of the crystals could be doubled to give a range of 2,500 to 10.000 kilocycles. Both transmitter and receiver operated on 12 volts.

All parts were tropic-proofed. The receiver proved highly selective. Charger trouble was the only difficulty encountered, and that was due to the strain of running the charger more than 1200 hours in six months' operation.

The 978th team reinforced itself with two escaped American prisoners of war who served as power and utility men. They had excellent guerilla pro-

* By authority Par 6, 7, SO 71 Hq, USAFFE, dated 14 Mar 45.

tection, and, by distributing medical supplies that they had brought with them, they won the devotion of the countryside. A Japanese motorboat patrol came hunting for them once. After the guerillas finished with them, the radiomen had the Jap motorboat, from which the lieutenant enjoyed aquaplaning for the next six months, and no more Jap patrols bothered them.

One of his duties was to build a hidden emergency air strip for American planes operating over Luzon. He did it with 500 laborers whom he paid for 30 days with strips cut from parachutes the Army had used to drop him building supplies.

By August, 1944, MacArthur was advancing on the Philippines with seven league boots and the need increased for a constant flow of communications on Japanese movements on Luzon, the heart of our objective.

That month, two teams of highly trained signalmen from the 978th, all Filipinos, embarked on submarines, each led by a Filipino first lieutenant of the U. S. Army who, as pilots, had been stranded on the Island of Negros after the fall of the Philippines and had made their way to Australia. There were about 25 men in each team, every one dually trained in radio operation and cryptography.

Supplies, so long denied the Southwest Pacific, were starting to reach Australian and New Guinea bases from the United States by then, and the two parties were able to take with them an abundance of first class equipment as well as extra cryptographic systems.

Each team brought four SCR-288s, the second standard Signal Corps sets to come into the islands (first standard sets went to Mindanao). According to field reports from Luzon, the four-watt 288 "proved very satisfactory..... Its best feature was that it was a master oscillator and so offered more frequency choice (3.5 to 6.3 megacycles). Its drawbacks were that its frequency range was too low and the filter wore out quickly, necessitating a large extra supply. Being hand generated and highly portable, this set was ideal for small observation parties going into small towns for close observation of Jap movements." A total of 34 of these 288s were eventually sent into the Philippines, as well as SCR-195 Walkie-Talkies and SCR-536 Handie-Talkies.

They also brought a couple of suitcase radio sets for espionage work in "hot" territory.

This set, known as an SSTR-1, depended on a portable net control station, called an SSTR-2, in the vicinity to relay its traffic. Contained in a small suitcase, the SSTR-1 operated from 110, 220 or 6-volt power supply. The power unit also provided a trickle charger to charge a six-volt storage battery from either 110 or 220 volts. Accompanying it was a smaller case containing a battery with enough power to operate the set several hours.

The transmitter had a three-watt output and was crystal controlled, the

crystal socket being on the face of the equipment where it was easy to interchange crystals. The receiver employed headphones only, and was reported to have poor selectivity.

Though compact, the chief disadvantage of the set was its weight. That factor led to the capture of the first operative trying to bring one into Manila. A Japanese military policeman became suspicious of his heavy burden.

The SSTR-2, weighing 300 pounds, consisted of three medium-sized cases--transmitter and receiver, power pack and gasoline generator.

Having no tropic proofing, moisture ruined it almost immediately, according to a report in the files of the 978th, and the frequency range of the transmitter, with a top of 7,000 kilocycles, was too limited and the receiver unselective. Transformers in the power pack were constantly decommissioned by the humidity, and one had to be rewound 15 times in 25 days. Only part of the set reported satisfactory was the four-cycle, single cylinder gasoline engine driving the 110-volt, 400-watt generator.

Best results were reported with the set known as the Suitcase Boston, a British design. Weighing only 11 pounds complete with receiver and transmitter, it was operated by hand generator, local power or batteries. It used any kind of wire antenna and would reach Leyte from Tarlac in the center of Luzon, a distance of more than 300 miles. One of these sets was successfully smuggled into Manila and began sending intelligence to the advancing American forces a week before they reached the city.

First choice for a long range field set was the NEI-3, a 30-watt outfit developed by the Dutch Army for espionage in the Netherlands East Indies. Its greatest advantage was its complete self-sufficiency. Neither gasoline nor batteries were needed because it was equipped with a bicycle generator. Riding the stationary bicycle, a man could supply power for anywhere from 50 to 100 groups before tiring. The entire set, contained in three cases, required six men to carry it. The transmitter used a "Y" antenna. It was crystal controlled and could work on double or triple the frequencies, giving a range of from 2,500 to 15,000 kilocycles. Crystals were changed by plugging them into a socket on the face of the transmitter. It would send over 2,000 miles to Australia, giving out a peculiar note that carried through interference. Weak point of the set was the receiver which had little selectivity and tended to drift from the frequency because of fluctuating power of the bicycle generator, according to users. The whole set was water-proof and withstood rough handling.

Antennas used by the espionage stations were always of the simplest sort so that they could be carefully camouflaged, particularly from aerial observation.

A third party of 25 Signalmen was landed by submarine in Northern Luzon in September. Its leader was a Filipino lieutenant who had been helping to unload an American submarine some months before when it was surprised by the enemy. There had been no time for him to get ashore so he was carried back

to Australia on the sub. But the submarine that brought him back with his party also came near being trapped, by a Jap boat hunting for another American sub that had just sunk a Jap ship. It had to submerge when it had unloaded only six tons of the team's supplies.

The party escaped with a few small radios and joined a band of guerillas led by an American major near Vigan, northwest Luzon. The Major put them under arrest when they first arrived, until they satisfied him of their identity.

By Christmas, 1944, the Signal Corps had fully a dozen underground radio stations in direct contact with GHQ and some 60 subsidiary stations on Luzon. After Leyte was invaded and General MacArthur moved his headquarters there, reception of these stations became difficult because their high frequency, tuned to his previous headquarters at Hollandia, tended to skip the intervening area.

When the task force left Leyte for Luzon, a Signal Corps captain, a first lieutenant, five operators and five code clerks from the 978th went along on the PCE (R) 849, a communications vessel. They intercepted guerilla traffic en route with non-radiating Navy receivers, and, after the landing, set up to handle guerilla traffic relayed to GHQ from the main receiving station, KAZ, then at Leyte still working guerilla stations.

The Voice of Freedom broadcasts to the Philippines, the Public Relations and network correspondents' programs to the United States, the entire daily schedule of the GHQ Broadcast Ship Apache, went on just as usual between 3 and 10 January 1945. It emanated from the same location in Leyte, at the same daily hours, used the same call letters and procedure, and even the voices and personalities were the same as before.

Only the Apache was not there and neither were the people whose voices went over the air.

With the four other ships of the Signal Corps Seaborne Command Post Fleet, the Apache had weighed anchor in Leyte Gulf on 3 January, was on the high seas on the Fourth, and was participating in the landing at Lingayen Gulf on the Ninth.

To keep the enemy in ignorance of the movement, all the Apache's operations had been taken over by a nearby shore station on 27 December and it continued in operation until the Apache resumed in her new location on 10 January. Transcriptions of programs using the same voices as customarily broadcast from the Apache were made in advance of departure and used while the broadcasters themselves were at sea.

The CP fleet was made up of the five vessels that had been used so successfully in the Leyte operation*--The Apache, the FP 47, and the PCEs (R) 848, 849 and 850.

Some changes and improvements had been made in the radio equipment of three of the ships after the Leyte operation.

Bohme automatic transmission apparatus was installed in the FP 47, greatly increasing the traffic potential of the press transmission craft.

BC-779 Superpros replaced AMR-100 receivers in the PCEs 850 and 848. Although some technicians favored the AMR-100, radio officers of Sixth Army, which operated the 850, expressed dissatisfaction with the Australian-made receiver, insisting it lost efficiency after three or four hours' steady operation. Four Superpros were installed in the 850, which retained two of its AMR-100s as standbys. The AMR-100s were stripped from the GHQ Ship 848 and six Superpros were placed aboard. Only four of them were mounted, however, the other two positions being used for non-radiating Naval receivers for intercept work.

For more than a month, almost every activity on the ships, as well as ashore, had been in preparation for the "M-1 Operation." By the afternoon of 3 January when the five communications vessels rendezvoused with Task Force 78 at the mouth of Leyte Gulf, everyone aboard was sure that their

*See SEABORNE CPs, An Official History of the Southwest Pacific Area Signal Corps' Command Post Fleet, prepared by the Signal Corps, Southwest Pacific Area, 1 January 1945.

eventual destination was to be Manila, though very few had any idea where the task force would strike.

At Leyte, they had had their baptism of fire in constant attacks by enemy planes that brought deaths and damage to two of the vessels, the PCEs 848 and 850. Since that invasion, the Japanese had been developing their sacrificial technique of suicide bomber attacks. The "Divine Winds" of the Japanese air force, plunging their planes and themselves out of the skies onto the decks of surface craft, had caused damage to U.S. forces afloat. The men aboard the communications fleet expected plenty of trouble on this new mission. One night, before sailing, the commanding officer of the 849 issued an order to his Executive Officer:

"Tell the men," he said, "to mail home now any souvenirs they are saving. They might get full of holes."

But morale on the five vessels was high when the task force got under way on 4 January.

As in the Leyte operation, the Chief Signal Officer was aboard the 848 and the Assistant Chief Signal Officer was on the 849, each accompanied by other Signal officers of the GHQ staff, besides the operating personnel for the Signal equipment. In addition, the 848 carried three Australian officers and an Australian intercept team, and the 849 carried the Filipino intercept team.

The dreaded suicide bombers made no attacks on the communications ships' part of the convoy. There were ordinary air raids on the way up, but they were treated with the contempt accorded routine occurrences. The enemy did, however, provide a greater variety of experiences in naval warfare on this mission than the Signal ships had previously encountered.

The first came when the unmistakable wake of a torpedo broke the tropical waters the second day out, and, while everyone held his breath, passed 500 yards ahead of the 849 and harmlessly between the 850 and an LST in front of her. Eager to use its untried anti-submarine weapons, the 849 ordered full speed ahead and went sniffing across the sea for the raider until relieved by a destroyer. It was later reported that the destroyer rammed a midget submarine.

The 55-year-old Apache developed engine trouble on the third day out and had to accept a tow from a tug until it was discovered the break-down was due to salt water in the main fuel tanks. Then a pipe was run to the fuel tanks of the Signal Corps generators and she continued under her own power.

The Seventh of January, in the Sulu Sea, was an eventful day for the ships. Personnel of the Signal fleet watched two Jap destroyers coming in to attack the convoy at 1025, saw one of them sunk by an American destroyer and the other one turn tail. Then, at 1825, two bombs dropped near the LST ahead of the 849, and the crew cheered when the LST shot down her attacker.

[illegible], on this voyage, at 0448 of 8 January, the 848 was bracketed by Japanese bombs, one landing 50 yeards to either side of her, but whereas in Leyte Gulf the same thing had riddled her with 100 holes, killing six men and wounding 23, this time she churned between the perilous geysers unscathed.

The night before the landing, intelligence warned all ships that floating mines had been detected and that an extra sharp watch must be maintained. Speed was cut way down. None of the ships' captains got much sleep that night. It was cool on the open sea, but there were damp hands and perspiring foreheads aboard the FP 47 when the bridge sighted a floating mine and the swaying vessel glided past it with just six feet clearance.

Dawn of 9 January, called S-Day for the operation, disclosed land on both sides of the crawling convoy and at 0730 the Navy's multitudinous guns ripped the quiet of the shoreline. The Signal Fleet, following its usual tactics, crept in through the barrage to lay together ready for the operations, off White Beach.

That night the Japanese surface suicide crews went into action. Orders were to fire on any small craft approaching a ship.

When the news of the landing was released the same morning, 10 January, the Apache and the FP 47 were ready. Contact was established with Radio Corporation of America at 0730. The official communique was read over the Apache's transmitter at 0800. Network releases and voice press transmission, all direct to San Francisco, followed. A courier boat brought reams of copy to the FP 47 for transmission.

In the operation, Sixth Army traffic was heavier and GHQ traffic lighter than in the Leyte operation. One factor in the lighter communications load born by the GHQ ships was the prompt installation of shore facilities. The 848 and 849 completed their primary mission---the handling of initial GHQ communications from the assault until establishment of shore stations---on S plus three. The 848 again handled the burden of GHQ traffic, about 24,000 groups, the 849 serving largely as a standby. Channels were established with other ships, the beach head and GHQ in Leyte.

Area nets in which the Signal ships operated were:

GHQ Signal Communication Ships Convoy Net, using SCR-610s, simplex voice---PCEs 848 and 849, Apache and FP 47.

PCE VHF Net, using SCR-300s, voice---PCEs 848, 849 and 850, and GHQ and Sixth Army ashore.

PCE High Frequency Net, using SCR-284s, voice and CW---PCEs 848, 849 and 850, and GHQ and Sixth Army ashore.

Inter-ship VHF Voice Net, using AN/TRC-1s---GHQ ashore to: the Boise by duplex voice only, the Apache by duplex voice and duplex radio teletype, terminating at PRO ashore, the PCE 848 by duplex voice and duplex radio teletype, the PCE 849 by duplex voice and duplex radio teletype, and the Tulsa (Navy intercept ship later renamed the Tacloban) by duplex radio teletype and an SCR 300 for liaison and co-ordination only.

Local High Command High Frequency Net using SCR-188s, TW-12s or the equal, manual CW---Commander-in-Chief's ship, Seventh Fleet flagship , PCE 848, and Allied Air Forces, Allied Naval Forces, GHQ and Sixth Army ashore, with another Navy flagship, Tulsa and PCEs 849 and 850 entering when required and acting as secondary stations.

PRO HF Net, using SCR-284s, voice and CW---LCI 759 (carrying war correspondents), Apache, FP 47 and PRO ashore.

PRO FM Net, using SCR-300s, voice---LCI 759, Apache, FP 47 and PRO ashore.

The PCE 850, serving Sixth Army, opened channels to Sixth Army Rear Echelon and GHQ in Leyte, to shore and to other ships, and did extensive relay work for tactical units ashore. Its miximum handle was 40,000 groups in 24 hours.

Both the 848 and the 850 served at the start of operations as courier centers for their respective commands.

On S plus four, the 848 and 849 were anchored near each other four miles off Dagupan when, without any alert, the unmistakable scream of a heavy missile was heard. There was no time to man stations. The captain of the 848 yelled hasty orders to "hit the deck", but the men were already taking cover wherever they could find it. The explosive struck the water midway between the two ships. Both were showered with shrapnel, but no damage was done. Concensus was that it had been a bomb from a high-flying plane, although it could have been a shell from a Japanese shore battery.

That same day two strafing Zeros attacked the two Signal ships, but luck remained with them. Bullets spurted into the water right up to the stern of each vessel, then the attacker of the 848 banked off just before scoring hits

and the plane strafing the 849 pulled out of its dive prematurely and missed.

Correspondents working on the Apache moved ashore on 17 January, relaying to the ship by VHF. The following day a spiral-four cable was run under water between the Apache and the FP 47, enabling the FP 47, which had no carrier system of its own, to utilize the Apache's. This gave her contact with both the Apache and shore by telephone and teletype, supplementing the regularly scheduled courier service that was maintained by an LCV between the Public Relations Office ashore and the FP 47. The ships swinging at their anchors placed great strain on the spiral-four. It frequently became fouled, and had to be replaced every three or four days.

Correspondents were preparing to move south with the advance, and for the next week radio technicians of the Apache were busy testing the SCR-399 that was to accompany the correspondents for remote transmission back through the ship.

The correspondents left 24 January with Public Relations Officers. When the operation reached its climax, the Apache was handling programs originating in Dagupan, San Miguel and Manila. The noise of battle in these broadcasts was not uncommon.

The historic ceremony in which General MacArthur turned over the government of the Philippines to President Sergio Osmeña on 27 February was broadcast to the world by the Apache, which was anchored in Lingayen Gulf, approximately 105 miles from Malacañan Palace, the scene of the ceremony, in Manila.

The remote pickup was accomplished over a spiral-four line, carrier equipped, from Malacañan to San Miguel, where it was patched through to Dagupan, and thence carried by VHF to the ship. The spiral-four was strung from San Miguel to Manila by the 276th Signal Heavy Construction Company.

To insure against interruption, maintenance crews guarded the line from Manila to Dagupan and the proceedings were carried simultaneously by SCR-399 direct from Malacañan to the ship and by VHF, either of which could have been instantly utilized in case of failure of the spiral-four.

The Apache received a broadcast quality rating of three minus from the United States on the program, and, within the hour, picked up from Hawaii the first of many rebroadcasts of it.

On the day that this broadcast took place, another ship of the Signal fleet was making history herself. In the whole panorama of Manila Bay, the PCE 849 rode at anchor alone, the first ship to anchor off Manila Harbor since the Japs' supply lines were cut off. Even as General MacArthur talked, the little gig from the 849 was threading its way through the Jap-infested hulks, the floating wreckage and the mines and other menaces of the unsurveyed waters of North Manila Harbor. It felt its way slowly to one of the piers, and, with a sigh of relief, the commander of the 849 stepped ashore, probably

the first American to enter Manila from the sea since the fateful day when the Rising Sun eclipsed the Stars and Stripes in the Far East metropolis.

It was a tense adventure for the little fighting ship that began, in routine fashion, on 31 January when communications were well established on shore and the Chief Signal Officer ordered the 849 to Leyte to bring back 25 tons of urgently needed Signal equipment, including two two-and-a-half kilowatt transmitters for radio teletype circuits to Brisbane and San Francisco, four spiral-four systems, 25 miles of W-143 wire and 25 miles of five-pair rubber cable.

Returning, the 849 reached Subic Bay with its priority cargo on 17 February. The ship's captain reported to the Naval Operations Officer there that he was bound for Manila Harbor with important Signal Corps materiel, and requested clearance to proceed.

"Manila Harbor!" expostulated the Operations Officer. "We haven't even finished sweeping it for mines yet."

The 849 Commander explained that he was under operational control of GHQ and that General MacArthur's headquarters wanted his cargo in Manila Harbor.

This was, in actuality, only a half truth. While it was an undeniable fact that Headquarters wanted the equipment in Manila Harbor, the 849 had received no orders to bring it in and it was hardly expected that she would. But the young Naval Lieutenant in command of the ship knew that no other vessel had penetrated the harbor and wanted his ship to have the distinction of being the first. Besides, he realized the urgency of his cargo and how much time would be saved by avoiding the necessity of sailing past Manila on North to Lingayen where the equipment would have to be trans-shipped overland by truck back down to Manila.

The Naval Operations Officer shrugged his shoulders.

"All right," he said. "If MacArthur wants you in Manila Harbor, we'll send you in. You'll get blown to hell, but we'll send you in!"

At that, it took nine days before the Navy would clear the 849 as the first ship to enter. Then it assigned her 60 LCMs, three LCIs, two LCVPs and a crane barge with tug, to convoy as far as the entrance, where the 849 was to leave them so they could wait in readiness for the opening of the Harbor.

Fuming at the delay, the 849 anchored off the Harbor at 1415 of 26 February. The surrounding waters, at that time, abounded not only with the bodies of dead Japs but with escaping enemy troops, swimming, clinging to rafts and wreckage, and in small boats. While they were anchored, officers of the 849 transferred to one of the many PT boats on nearby patrol duty and helped to kill 60 Japs on a single reconnaissance.

The next morning they made their survey trip in the gig, and on the 28th, with the gig preceding her, the 849 crept through the still unsurveyed waters of North Manila Harbor to the dock. At one time the fathometer showed only six inches' clearance beneath the heavily loaded craft, and the skipper had a moment of regretting his boldness, but the ship tied up without mishap.

Land fighting was in progress just the other side of the Pasig River and even parts of the waterfront were still in Japanese hands. Through the night, American artillery pounded away close by, star shells and the fires of burning buildings lighted the sky, and the telegraphic chatter of light arms fire kept messaging all aboard that there was a war in the neighborhood.

It was one of the rare nights when a captain of a ship tied to a dock walked the bridge all night long. Not until a few days later, when a mopping-up boat cleaned them out, was it discovered that there had been a pocket of 20 Japs in a hulk a few hundred feet from the same dock.

"Why, we passed so close to that hulk we could have tossed hand grenades into it." said the Captain.

Almost every partially submerged wreck in the harbor proved to have been a refuge for retreating Japs.

Disgruntled and frankly envious of their sister ship's distinction, the men of the 848, whose combat experiences had distinguished them in Leyte, sat under orders in Lingayen Gulf waiting to escort the Apache and FP 47, with a convoy of merchant vessels, into a comparatively safe Manila Harbor on 7 March.

The FP 47 had closed operations on 26 February when Press Wireless was able to open operations ashore. From the landing until that date she had transmitted 1,092,094 groups of press copy, Press Wireless receiving 729,106 for the American press, and Beam Wireless 362,988 for the Australian press. All Press Wireless transmissions were by automatic equipment. Beam was by both automatic and manual. The operational peak was reached on 2 February when 47,882 groups were transmitted in 24 hours, 33,075 going to Press Wireless. Beam's highest total was 16,265 on 25 February.

For the 48 days of operation, the average daily number of groups handled was 22,753. January's total, from the start of transmission on the Tenth, was 439,052 groups of news copy. The upturn in February traffic was caused by the human interest value of stories about the liberation of prisoners and internees and the climactic battles of the Luzon operation.

During the period of increased copy flow, Signal personnel of the FP 47 maintained round-the-clock schedules to insure prompt transmission.

The Apache, which transmitted press copy by voice as well as its broadcasts, likewise felt the upsurge in February, its heaviest press traffic coming between the First and Fifteenth of the month. The Apache broadcast 275 programs in January, of which 249 were Voice of Freedom and United States broadcasts, the remainder having been directed at Australia. The February total was 220 programs, 198 being Voice of Freedom and United States broad-

casts.

Another seaborne Signal Corps innovation contributed to the success of Luzon communications---the signal supply vessels. These are floating depots, complete with stocks, hand trucks, monorail cranes and shop facilities, each manned by a lieutenant and five- or six-man depot team from the 3168th Signal Service Battalion.

As distinct from mere cargo-carriers, they do not unload at their destination, but come in with supplies sorted, shelved and stocked, doling them out on requisition like any other depot. They were designed to service invasion troops and provide initial supplies at new bases.

One of them,a 20,000-ton reinforced concrete barge, was towed into Lingayen Gulf about S plus ten and went into operation with a repair shop and balanced stock, including Class II to supplement tactical supply and some Class IV installation material that is not carried in on landings. Bearing the official designation BCL 3063, it had been rechristened Alcatraz by the Signalmen.

Its sister barge, the BCL 3059, named The Rock, entered Manila Harbor on 1 March, the heaviest vessel to come in by that date.

A third floating Signal depot, the concrete steamer Francois Honeboque, later reinforced it in Manila.

Ducks, LCMs and landing barges clustered around these craft like trucks around a land depot, loading with Signal equipment for installations ashore.

The "Grand Fleet" of the Signal Corps, constituting permanent General Headquarters radio installations that can be floated, intact, to different locations, arrived on 18 March, and was operating the single side-band to San Francisco within 48 hours after getting into position in the Harbor. There were two receiver and two transmitter barges in the fleet, with the converted excursion steamer Weeroona, which serves as quarters for the personnel. Radio telephoto service to the United States and Australia was reinaugurated over one of the seaborne transmitter channels.

The plan was for the furthest advance headquarters to have instant, direct communications back, no matter how fast the drive upon Manila might become. The plan paid dividends - the advance proved faster than anticipated.

For this purpose, the 10th Radio Carrier Team (reinforced) of the 989th Signal Service Company was set up as an advance element of the GHQ Mobile Communications Unit, with six VHF-equipped trucks. Personnel comprised a captain and first lieutenant who were VHF specialists, a first lieutenant message center officer and 45 enlisted men, including carrier and message center specialists. They were known as the CP Boat Echelon because of the unit's continuing VHF link with the seaborne CPs.

T/O and E equipment for carrier teams proved deficient for the work at hand in that the one-and-a-half-ton trucks allowed the teams* were too light and unable to carry the necessary impedimenta, and the PE-75s authorized* were an insufficient source of power, so two-and-a-half-ton six-by-sixes were obtained, with one-ton power trailers.

Five trucks were equipped with two complete VHF terminals, completely wired and cabled in the truck, and each terminal afforded three voice and four teletype channels. Equipment required for this on each of the five trucks was two AN/TRC-3 VHF sets, two CF-1-A telephone carrier terminals, two CF-2-B telegraph carrier terminals, two SCR-300 VHF sets and a switchboard. A sixth truck carried three complete terminals. BD-71 six-jack switchboards were put in five of the trucks and the sixth carried a BD-72 twelve-jack board, with 30 feet of cable so that it could be operated as a maintenance and monitor board from a fox hole. The cable came in handy the first night of the landing when the board kept operating while the truck was being pierced by shrapnel from Jap shelling.

Another truck carried along a BD-91 twenty-jack board, all wired and cabled, with the cable stubs hanging loose, and four reels of five-pair rubber cable to connect it with a signal center and with the cable stubs also hanging loose from the truck. This enabled the signal center to be set up anywhere within a mile of the truck.

One truck was also equipped with two SCR-258s, and one SCR-300 VHF set, and another had 10 teletypes with operating positions inside and 30-EE-8-B field telephones. The other five trucks each carried two teletypes as cargo.

Power was supplied by a PE-95 ten-kilowatt generator with a PE-75 two-and-a-half-kilowatt generator as a standby, in a one-ton trailer hooked to the back of each truck.

Most of the equipment was shackled to the truck beds and the tarpaulin supports were raised six inches to provide necessary height. On either side of the rear of each truck two compartments were built from which the antennas could be quickly drawn and mounted on the outsides of the truck.

* T/O & E 11-500, dated 22 Sept 44.

** WD ltr SPX 400 (30 Nov 43) OIB-S-SPDDL-M. "Special list of equipment for radio carrier terminal teams A, B, C, 989th Sig Serv Co," dated 1 Dec 43.

A weapons carrier and jeep accompanied the VHF truck convoy. On the weapons carrier was a 75-watt Navy transceiver, a battery-operated set similar to the SCR-284, for communication with the LST 779, which carried command elements of the 308th Bomb Wing of the Far East Air Forces.

The first two trucks were loaded on a Navy Transport to be transferred to LCMs for the landing at Blue Beach, east of the Dagupan River.

The high surf made a landing there impossible, so the LCMs put into White Beach 3, four miles east of Blue Beach near San Fabian, on S plus one.

White Beach 3 was no millpond. Waves were breaking 10 feet high. The LCMs were literally thrown upon the beach. The trucks had to be run off at top speed. A power trailer overturned in the surf. It was dragged ashore on its side by two of the trucks' winches and its generators were later restored to working order. An LCVP, being used as a courier boat, was swamped by the surf and smashed. It carried the unit's rations, but they floated and most of them were recovered. Some personal gear was lost, however.

Initial objective of the VHF unit was to be in operation within an hour of landing. Then it was to leap frog its trucks with the advance to Manila. Forty-two minutes after crashing onto the beach, VHF was on the air, in communication with the PCEs 848 and 849, the Cruiser Boise carrying General MacArthur, the Apache, the Gunboat Tulsa carrying Navy intercept, the Seventh Fleet flagship, and the FP 47, all by AN/TRC-3; the PCE 850 by SCR-300, the LCI 759 carrying war correspondents and the LST 779 by SCR-300 and the Navy set.

Between the beach and Dagupan, the Japs had blasted all the bridges, a practice that was to plague our troops the whole way to Manila, so the CP Boat Echelon took to the water again, reaching the town by LCMs up the Dagupan River.

In the forefront of GHQ communications as they were, considerable reconnaissance work fell to the VHF officers on behalf of following Signal echelons. During one reconnaissance mission, the VHF jeep jounced for six miles along a railroad track from Mangaldan to four miles north of San Fabian, under enemy artillery fire most of the time. The railroad bridges were the only ones the Japs had left standing, and the jeep jolted from tie to tie across rickety trestles.

On another reconnaissance along a lonely road, the jeep entered the little town of Santa Ignacia. All the townspeople quickly gathered to see the vehicle, cheering and shouting "Vive Los Liberators!"

From one of them, the Signalmen learned that they were the first Americans to enter the town.

"And where are the Japs?" they inquired.

"The Japs are all about us, in the hills, in the fields, everywhere, but now we do not care. We are safe because you Americans have arrived."

As gracefully as possible, the Signalmen bowed out, turned their jeep around and---there is no other word for it---they scrammed! Two miles back they met the Infantry advancing, but they kept going until they reached Camaling, where they sent for one of their trucks and tied VHF in with GHQ, Sixth Army, XIV Corps and, through 37th Division, the lower echelons.

The 129th Infantry Regiment took Tarlac on S plus 13 at about 0600. The first truck into town was loaded with ammunition. The second was the VHF truck. It arrived at 0900.

The VHF unit had planned to use the Provincial Capital Building in each town because it was usually the tallest and afforded the best line-of-sight operations for VHF. But the Japs had just put the torch to the one in Tarlac and it was still smouldering when the truck drew up to it.

The officer-in-charge asked a guerilla to show him the next tallest building. In it they found a pile of kerosene-soaked mattresses, but the Japs evidently had had no time to light them.

From here they ran lines to surrounding command posts and began relaying messages through Camaling.

One day later, a VHF truck was able to get through to San Miguel where General MacArthur planned to advance his headquarters. The remaining four VHF trucks having been landed from an LST soon after the original landing, two more were brought forward from Dagupan, leaving one on the beach near Dagupan, one at Camaling, and one on the road, coming up for the next move.

Four days later, as the line troops pressed on, one of the San Miguel trucks was dispatched to San Fernando, leaving one truck in operation at San Miguel and the other as a terminal for a spiral-four line coming into there from Dagupan.

After two days' operation in the Provincial Building, San Fernando, the advance truck proceeded to Malolos, arriving right after the combat troops. The truck was carried across the rivers on pontoon ferries.

At Malolos, the Provincial Building was also burning, but the Signalmen, feeling certain that the fire would not destroy it, and with little other choice of location, moved their VHF sets to the roof and opened communications. Water systems having been destroyed by the Japs, there was no way to fight the fire, and it burned for four days while the Signal Corps continued operations in the building.

After the fire burned out and the worst dangers seemed over, a guerilla dashed up to the team with the news that four Japs had just run out from under the building. The officers had gone on ahead to reconnoiter a new location, so the ranking non-com, a T/4, gathered the three other

members of his team, and joined guerillas in annihilating the Japs. Afterward, dynamite and booby trap materials were found under the building.

The last lap proved the roughest of all.

The main body of the 37th Division, with whom the VHF units had been keeping pace on the right flank, was temporarily bogged down by the rivers with their destroyed bridges at Calvario.

The Signal reconnaissance jeep, after one day in Malolos, bounced across more railroad trestles to get an estimate of the situation, and, at the front, picked up intelligence to the effect that the First Cavalry Division was getting through a road on the left flank.

Back to XIV Corps Headquarters at San Fernando the jeep went, to obtain a priority for GHQ signal vehicles to be ferried across the Bulacan River. From the opposite bank they were able to cut across country on a back road to the artery over which the First Cavalry had passed.

The First was spearheading through, not stopping to clean up the Japs along the way.

It took the VHF truck five hours to catch up with the combat elements at Bagbag, six miles from Manila, and there was little of that time when the truck's six wheels were all on the ground at once - with the road under sporadic enemy fire, safety lay in speed.

The Signalmen kept right on going through the First Cavalry and didn't stop until they reached Novaliches. They wanted to be in a position to flash the first messages from Manila as the city was entered.

Advance Cavalry patrols had already penetrated into Santo Tomas University and Malacañan Palace but they were cut off.

The next day, the main body of the First Cavalry began slugging its way into Manila. Line officers refused to let the VHF men accompany them. The officer-in-charge went after the Division Signal Officer and through him obtained authority to proceed.

The delay had cost the Signalmen three hours. They moved in behind 20 tanks, but too far behind, because in the intervening mile Jap snipers had come out. At one point enemy firing became so hot that the Signalmen had to race for a building and tumble out to take cover.

They entered Manila with the forward echelons of the First Cavalry, on 4 February 1945.

For five days, Manila burned as they went about their duties in the northern part of the stricken city. When the downtown area had cooled off somewhat, and before the wreckage was cleared, they moved receivers and

transmitters to what remained of the Avenue Hotel on 9 February to continue operations. Carrier terminals were installed in a building two blocks away, connected by spiral-four.

The VHF axis now ran from Manila 67 miles to San Miguel, then 28 miles to Moncada (four miles east of the original site at Camaling), then 25 miles to Dagupan and from Dagupan to the CP Fleet, anchored off shore.

transmitters to what remained of the Avenue Hotel on 9 February to continue operations. Carrier terminals were installed in a building two blocks away, connected by spiral-four.

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MOBILE COMMUNICATIONS UNIT

Amidst the normal chaos of the early days of the landing in Lingayen Gulf, two LSTs, heaving restlessly in the high surf, dropped their landing gates onto White Beach 3 and disgorged the most mechanized signal installation ever to roll onto a Pacific shore.

The engines of many vehicles, roaring for release from the confinement of the ships' steel sides, almost drowned out the nearby explosions of Japanese shells.

Out came all the signal facilities for General MacArthur's roving headquarters, complete in every detail from staples for telephone directories to powerful radio stations, and every item of it on wheels. There were 100 vehicles in all, known as the GHQ Mobile Communications Unit.

The Mobile Communications Unit had first gone into action, and proved its worth, in the Leyte Operation. Its mission there ended on 15 December 1944 and in the meantime it had been reconditioned and expanded for the biggest job of mobile communications in SWPA history. All equipment was generally in duplicate to allow leap frog progression without interruption of service.

Here are the vehicles and major items of equipment that made up General Headquarters' 40-mile-an-hour signal facilities:

34 Two-and-a-half Ton Six-by-Six Trucks

5 with SCR-399s

1 with two-position TC-2 switchboard

1 message center truck

1 eight-position receiving and operating truck with 12 BC-779 Superpro receivers and eight MC-88 typewriters

1 with four AT-20, 500-watt transmitters

1 teletype and cryptographic repair truck

1 teletype operations truck with 13 EE-97 teletype machines

1 radio repair truck

1 mobile orderly room

1 mobile kitchen for feeding 500

1 loaded with two BC-339, one-kilowatt transmitters ready to be set up in a tent

1 with two 25-kilowatt PE-85-L diesel power plants to be normally operated outside the trucks but capable of operation inside.

1 POL (petroleum, oil and lubrication) truck with 1200-gallon tank for white gas for PE-95s and 12 drums of oil and grease, plus pumps mounted.

2 radio teletype trucks, each with two AN/FRR-3 Press Wireless radio teletype diversity receivers and two AN/FGC-1 bays plus rack with patch-panel, Super-pro and model 19 teletype for monitoring.

1 general plant shop truck

4 with two each AN/TRC-1 VHF systems, consisting of receivers and transmitters, and two CF-1-A and two CF-2-B carrier systems and four ringers.

8 loaded with 45 days' rations

2 loaded with miscellaneous equipment

Two Six-Ton Vans

1 carrying complete TC-10 three-position switchboard and 350 TP-6 regular hand set telephones and associated equipment for three-position operating plant.

1 carrying radio teletype terminal equipment for four circuits, including table equipment for SIGTOT and teletype room and message center equipment.

Two Four-Ton Prime Movers

1 with 1200-gallon water tank with pump

1 with 16-ton semi-trailer to transport bulldozers

Twenty-eight One-Ton Trailers

20 each with a PE-95-H 10-kilowatt power plant and PE-75 two-and-one-half kilowatt power plant

6 pre-packed with wire and cable, pulled by weapons carriers

1 with 250-gallon water tank

1 with 300-gallon diesel fuel tank and drums of grease and lubricants for bulldozers.

Two Four-Wheeled Trailers

1 mobile kitchen equipped with Wiles steam kitchen which baked for the personnel and augmented the kitchen truck

1 with 220 cubic foot refrigerator

Twenty Jeeps

5 for GHQ Signal Section

5 for message center

10 for utility use

Twelve Other Vehicles

1 four-ton wrecker

1 D-8 bulldozer

1 D-7 bulldozer

6 three-quarter-ton weapons carriers for five man wire construction, installation and maintenance teams, each with a 20-foot ladder, tools, spiral-four, five- and ten-pair rubber cable, W-110 and W-143 wire, and TP-6 and EE-8 telephones.

1 K-43 line construction truck carrying insulation, wires, sectional steel poles and guying material for construction of ten rhombic and 30 double doublet antennas.

2 DUKW ducks with SCR-399 on each, and, on the rear deck of each, two PE-75s.

There were four echelons of GHQ communications---first, the seaborne CPs; second, the VHF trucks; third, the Mobile Communications Unit, and fourth, the regular GHQ operations group. They advanced in waves, one overlapping the other and absorbing the earlier echelon's personnel. As a result, the personnel status was fluctuating and it would be difficult to break down numerical strength. However, at the start of operations, the Mobile Communications personnel was approximately as follows:

Officer-in-Charge - Major

Administration and Personnel - Captain, six EM clerks, and three Medical Corpsmen.

Mess - Warrant officer junior grade, mess sergeant, 12 cooks and 12 kitchen helpers.

Message Center - Captain, three lieutenant duty officers, message center chief, three trick chiefs, 24 message center clerks, 30 code clerks and SIGABA operators and two safehand clerks.

Transportation - First lieutenant, motor sergeant, eight mechanics and 45 drivers and messengers.

Officer of the VHF Unit stringing spiral-four to connect carrier bays with VHF set at Dagupan.

U.S. Army Signal Corps Photo

"GHQ's Jockey telephone exchange and
the Signal Office were established in
the Post Office".

Former Post and Telegraph Building in Dagupan
which the Mobile Communications Unit occupied.

-- U. S. Army Signal Corps Photo

Radio Receivers - First lieutenant, chief radio teletype receiver attendant and 12 technicians, chief transmitter attendant, three trick chiefs and nine technicians.

Operations - First lieutenant, chief radio operator, three trick chiefs and 36 manual radio operators; three trick chiefs and 19 radio teletype operators and 12 wire teletype operators.

Inside Plant - First lieutenant, chief phone operator, three trick chiefs and 18 operators and four telephone directory clerks with mimeograph.

Outside Plant - First lieutenant, wire chief, three trick chiefs and 36 installation and repairmen.

General Plant - (including all construction and maintenance) first lieutenant, six general radio technicians specializing in installation, repair and maintenance, five teletype and cryptographic installation and repairmen, one diesel and gasoline chief mechanic and nine attendants, one chief antenna rigger and seven men, one draftsman and sign painter, four carpenters and cabinet makers, one plumber and metal worker, and three electricians for building and frame wiring.

Mobile Communications came into Lingayen Gulf on S plus one and two, establishing radio contact with the VHF Unit on shore from the Harbor. The high seas made it impossible to land the heavy vehicles on schedule as they came in, and they did not roll onto the beach until S plus two and three. With the road to Dagupan cut off by blown bridges, many of them remained there, under Japanese artillery fire, for three days and three nights.

The radio-equipped ducks, however, managed to waddle through amphibiously, though they got stuck on mud flats of the Dagupan River and had to be winched free. They opened channels to Leyte for the Mobile Unit.

At 1900 of S plus three, a lone Japanese Zero made a strafing run over the town of Dagupan. Only one gun in the town was able to open up on it, and that was the .50 calibre machine gun on one of the Signal ducks. It squirted a blast into the tail of the Zero and brought it down. That was the second Japanese plane with which the duck-gunner, a Pfc., was credited, the first having been a two-engined Japanese bomber he downed from the duck in the Mobile Communications operations at Tacloban, Leyte.

It was finally determined that the main body of the mobile unit would have to proceed to Dagupan by LCMs, but after 20 per cent of the unit had been hauled up the river, a quicker system was worked out, of having the unit vehicles drive to the river's edge where the LCMs ferried them across.

The communications vehicles rolled into the public market at Dagupan, then fanned out into dispersed signal installations. GHQ's Jockey telephone exchange and the Signal Office were established in the Post Office. Transmitters were scattered around the skeleton of a ruined church, two-and-a-half miles out, on the road to Lingayen. Sixty-foot bamboo poles were cut

for the initial V antennas for the radio teletype circuits to Leyte. These were later replaced with poles cut from coconut trees. Rhombics were constructed for the Honolulu and San Francisco circuits.

The receiver station was established in an area back of a cemetery where there were rows of coconut trees 150 feet apart, between which double doublet antennas could be strung with a diversity double doublet for the Leyte radio teletype circuit. Operations were conducted from inside the trucks.

A store across the street from the public market was taken over for the Signal Center, with wire and radio teletype, message center and code rooms on the ground floor, and the Australian Sixth Wireless Unit intercept, Philippine intercept, and Allied Air and Allied Naval operations, on the second or top floor.

When General MacArthur moved his headquarters into Dagupan, full communications facilities were waiting.

Twenty native carpenters were hired to repair buildings and tidy up installations, and by S plus eight, five days after the first Mobile units had entered the town, the last traces of improvisation had been erased from the finished Signal set-up.

Signal officers looked gratefully at the sunny, January skies of Luzon, recalling the typhoons and incessant rains of their first mobile mission on Leyte. The weather was a two-fold blessing, not only favoring radio reception but speeding all construction work.

One and one-half hours after San Miguel was captured, a jeep containing the Assistant Chief Signal Officer and the Officer-in-Charge of the Mobile Unit sped into town on reconnaissance. The next day a convoy of 20 Mobile Communications vehicles and 75 men rumbled past advance Infantry installations south of Dagupan and into San Miguel.

The convoy included both ducks, a third SCR-399 on a truck, mobile switchboards and kitchen, the shop truck, three wire section weapons carriers, the general plant K-43 truck, and jeeps. Entire strength of the general plant section went along to undertake the new construction.

The site chosen for the signal installation was a group of buildings surrounding a sugar refinery. It was about three-quarters of a mile from the location that had been selected for other GHQ offices, but it afforded ample room for all the installations of the Office of the Chief Signal Officer, which represented the biggest section in Advance GHQ. Besides, it adjoined the Cub Strip, which facilitated the Chief Signal Officer's operation of three small observation planes obtained from XIV Corps for courier and taxi missions.

One-way pontoon bridges, river fords, congested roads and enemy ground harrassment meant nothing to these little planes. They supplemented the regualr safehand courier service with both scheduled and special runs that

made messenger traffic in many instances faster than any other agency. They also greatly expedited the movements of staff officers, for each plane was able to carry one passenger in addition to the average safehand cargo. Day and night, overland couriers made the run back to rear installations, and, as the advance progressed, forward, in weapons carriers escorted by jeeps with armed officer guards, over shell-pocked roads where the vehicles' own heedless speed was their best protection from snipers and enemy patrols. But where it took the ground couriers sometimes more than five hours to negotiate a 75-mile trip, the courier planes skimmed their straight-line route in 70 minutes.

The complete San Miguel installation was accomplished in a week, and service was waiting to be cut over when the headquarters moved in.

Receiver trucks operated in a field adjacent to the Signal Center. Transmitters were set up a mile away, along a railroad track that ran past the sugar refinery.

Among the details of advance planning for the operation was an order for railway wheels that could be fitted onto jeeps. The order was based on G-2 reports and the Chief Signal Officer's knowledge of the country acquired in the first battle of the Philippines. Flown to the Philippines from Sydney, Australia, the wheels proved valuable in maintaining vehicular contact between the Signal Center and the transmitter site at San Miguel.

The little "jeepomotive" that scooted along the rails was christened The City of Manila, and a large sign with the name was hung on the side.

Later, other jeeps equipped with railway wheels that had been previously ordered in the United States, were used to advantage for wire maintenance work along railroads throughout the island.

On 28 January, when the regular GHQ Signal Operations Group took over, after six days of mobile operation, XIV Corps was sweeping on down to Manila. The Japs had not made a stand in depth anywhere down the Valley and it looked as though the American forces might overrun Manila as expeditiously as they had rolled back the enemy along the approach.

Whether this proved so was no direct concern of the Signal Section. What did concern it was the possibility of it, for MacArthur had not only kept his headquarters up with the advance, he had pushed it ahead of the main body, and his desire to re-establish in Manila with the least delay was no secret even to the Japs. Communications had to be prepared for the eventuality of another lightning shift of Advance General Headquarters.

So once again tail gates banged shut on 20 Mobile Communications vehicles and the advance guard of five officers and 50 enlisted men started south through the congested lines of war machines waiting to move to the front.

Their destination was an objective not yet ours, the City of Manila.

The 37th Division was driving on the gates of the city as they got under way.

The Mobile Communications advance made two leaps. The first took them to Malolos, where they spent the night. The second took them to the figurative gates of the city, where they found the 37th still pounding.

With the tanks, the big guns and all the mechanized forefront of an advancing army, temporarily bogged down, they bivouacked beside the highway in back of the stubborn Talrahan River and its demolished bridge.

The next morning, 3 February, a part of the Signal convoy pulled out and followed its own advance guard, the VHF unit, over to the left flank to join the spearheading 1st Cavalry. At 1900, 50 animated heaps of sweat-streaked dust piled out at Novaliches after a careening ride over unprotected back roads. Not even the most advanced squadron had reached there. Mobile had telescoped onto its own point, the VHF group. The CP followed the Signalmen into Novaliches.

That night, they witnessed the impressive sight of 500 flag-waving men and women guerillas marching single file across the fields to join the Americans.

There were enough enemies around for constant harrassment, and machine gun and rifle fire rattled about them through the night.

The next morning, with the VHF vehicles in the lead, the GHQ convoy fell in behind 20 tanks and some trucks that were going into Manila. Three miles out, a Japanese road block opened up on the leading vehicles of the Cavalry column with an anti-tank gun. Several were hit. For three hours the column was pinned down until the road block was outflanked and destroyed. Somebody in the Signal detachment calculated that but for an annoying 15-minute delay when breakfast had been served that morning, their vehicles would have been approximately at the point where the Jap gunfire struck.

A mile further on, when the Mobile unit reached the field of sniper fire that the VHF vehicles had squirmed through, Military Police held them up again until the snipers were flushed out.

At 1300, with cocked weapons in every man's hands, the communications soldiers stepped out of their vehicles onto Grace Park in the City of Manila. The Cavalry was flushing out a few enemy defenders on the plane strip there and the Signalmen witnessed another incident of a growing series of attrocities that were to mount to an inhuman superlative as the fight for Manila progressed. In plain sight, a dozen or so Filipino men, women and children were mowed down by an entrenched pocket of Japanese riflemen.

Mobile officers generally expected to set up their installation in Santo Tomas University, the Japanese internment camp that had been successfully breached the day before by daring 1st Cavalry prongs which were promptly cut off.

But the avenue into the city from Grace Park was reported under Japanese mortar fire, so the unit was once again halted.

However, none of the officers or men were too much surprised when, a little later, a jeep with two stars on the dusty red plate on its bumper approached them from that same avenue out of the supposed sector of mortar shelling.

They recognized the old fatigue hat that the Chief Signal Officer had worn on Bataan when the Japs were doing the pushing, and that he had saved for his return to Luzon. Daily, as the advance rolled on, he had driven to the front to keep contact with advanced elements of Signal operations, and to give them the benefit of knowledge of the country acquired before General MacArthur had ordered him to accompany other key members of the staff out of Corregidor through the Jap lines to Australia. So far as can be learned, he was the first general officer of MacArthur's staff to enter the city this time. He had come in with the first vehicles of the 37th Division crossing the hastily erected bridge over the Talrahan and immediately drove crosstown to join his Mobile unit that had come in from the East. He had encountered no mortar fire on the way.

With an exhausted lieutenant of his staff at the wheel of his jeep, he led the communications convoy back in a westerly direction to the Ang Tibay shoe factory, which he had used as a Signal warehouse in the days before Manila fell to the Japs. They reached it without mishap at 1800.

When the GHQ Signalmen moved into Manila, there stretched before them a beautiful city with stately homes, impressive office buildings, fine shops and splendid drives and parks. Late in the afternoon they saw a thin wisp of smoke rising persistently among the puffs of exploding land mines downtown. The Japs were applying the torch to Manila, determined that the Far Eastern Metropolis should be dragged to destruction with themselves.

By night, a fire without parallel in the history of the tortured Orient was consuming the heart of the city. The Signalmen climbed to the roof of the factory under a sky-filling canopy of smoke, watched the explosions, felt the heat against their faces, and looked at each other disbelievingly in the bright glare of the conflagration, while below them thousands of refugees streamed past.

As the fires consumed the downtown district, the Army began evacuating the 1300 American Army prisoners and civilian internees liberated a few hours before at Bilibid Prison. They turned the flow of wretched but deliriously happy humanity into the factory for shelter.

The Signalmen gave over all their personal equipment for the evacuees to use, carried in about 200 stretcher cases, and bedded down the entire contingent in the building.

But the liberated inmates of Bilibid were too happy for sleep, so at 0300 hours, the mobile unit rigged a PA-5 public address system, and

broadcast popular song records for them for three hours. Most of the songs the people had never heard before and for many of them it was the first popular music they had enjoyed in years.

The Signal Corps officers and men gave their guests all of their cigarets - they had none themselves for nearly two weeks afterward - and, when water became scarce, their vehicles made several runs over streets that were under Jap mortar fire, to bring them five-gallon water cans filled with beer from a North Manila brewery.

While the convoy had been moving into the shoe factory, reconnoitering Signal officers were surveying the Manila Golf Club as an area that might accommodate all their installations. They had walked around the club premises, looked out on the neglected greens and returned favorably impressed. Next day, key members of the Mobile staff went to the club in three jeeps, drove unconcernedly through the gates and were astonished to find bullets winging past their heads. Dispersing, they surrounded the building from which the shots emanated and flushed out Japanese snipers who had taken over in their absence. Two were killed and one escaped.

At 1200, Mobile moved into the Golf Club and staked out sites for its installations.

The same morning that the Mobile officers were ducking sniper bullets on the golf course, the two-star jeep of the Chief Signal Officer stopped beside a gaping MP in the entrance to Santo Tomas University.

"My God, sir!" stammered the MP. "Weren't you fired on coming up that street?"

"No."

"Then you're the first vehicle to get through that way this morning. The Japs have been sweeping it with a machine gun!"

Santo Tomas was becoming a downtown center of military activity. Tactical communications were going in. Signal Photographic was establishing Luzon headquarters there. Returning to Mobile, the Chief Signal Officer ordered an SCR-300 installed on the roof of the Administration Building to maintain contact at 30-minute intervals with the Golf Club.

Japanese shelling of the University had begun when the radio was set up on the roof. The operator was under fire most of the time he was at his post. At 1200 the next day, while he was away from his set between contacts, a Japanese shell blew it to bits.

The only casualties the Mobile Unit suffered were at Santo Tomas where two soldiers of the unit had made their way contrary to orders. They were wounded by shellfire 7 February and had to be evacuated.

The early days at the Manila Golf Club were not without excitement, however. At various times, the Signalmen, XIV Corps guards and guerillas killed 14 Japs on the links, which, a teletype operator drily remarked, was "slightly below par for the course".

For many days after the entry into Manila, the night courier run between the city and San Miguel was made under strict blackout conditions, straight into the loudening crescendo of artillery bombardment and counter-bombardment, though for the first few nights of the service to the city the road for miles was as bright as Broadway from the fires of burning Manila.

It was an eerie experience for the men of the courier service, crouching low in their seats, their weapons on safety, their helmets straining at chin straps as the vehicles plunged over the torn roads. War-like shadows of torn trees, crumpled planes and blasted homes pointed toward them as they sped south into the brilliant light of the flaming city, with the whine of an occasional sniper's bullet playing soprano to the engines' tenor and the rumbling bass of battle.

After establishing itself, Mobile undertook its secondary mission, reconnaissance for permanent Signal installations, under personal direction of the CSigO.

Planning of the Signal installations for Manila, the biggest base ever contemplated in the Southwest Pacific, had begun months before. Communications on an unprecedented scale were going to be required, with every major headquarters---GHQ, United States Army Forces in the Far East, United States Army Services of Supply, Far East Air Forces, Seventh Fleet---and many subordinate headquarters, scheduled to locate in the area.

Intelligence activities on the communications situation in Manila by the GHQ Signal Staff itself began back at Malolos where the officer-in-charge of the advance VHF unit was instructed to interrogate guerillas and escaping civilians from Manila on the condition of facilities in the city and the fate and location of a list of civilian technicians. The list was compiled by the Chief Signal Officer from names of persons who had proved valuable to the Signal Corps before the Japanese occupation. Thus he was able to establish prompt contact with many of these people as soon as Manila was entered.

As with all plans in warfare, those for the Manila Signal setup had to be revised, but drastically this time because they were drawn, perforce, on a city the whole face of which had been altered by Japanese rape.

Reconnaissance on 10 February took Signal officers to the Santa Mesa Estate before the Infantry had reached it. They found the Japanese had fled, though not without having stripped their radio station there. With the exception of the Jap transmitter station at the Manila Golf Club, equipment had been removed from every enemy radio station, and at the Golf Club looters had stolen vital parts of the 50-kilowatt transmitter. What remained was dismantled for spare parts and a one-kilowatt Japanese transmitter was captured intact, still in its packing cases. It tested satisfactorily on

the air but was looked upon as outdated by the Americans. All antenna poles and towers had been left intact and served as temporary antennas for us.

Japanese construction favored hollow, laminated wood poles reinforced by iron bands for heights around 125 feet, and narrow solid wood sections lashed together and guyed in staggered effect for heights of 50 to 75 feet. The old RCA station near Quezon City was a roofless shamble of charred panels, battered parts and broken tubes, believed to have resulted from a bomb hit, but the 200-foot steel towers still stood.

Wires were down all over the city, but damage to poles was mostly from fire and combat, and telephone plants and exchanges had been largely untouched. Everything suffered from three years' neglect, particularly the Manila cable system. The fire left nothing but the walls and concrete floors of the downtown telephone building, which the Chief Signal Officer and staff members inspected from top to bottom with American artillery shells rustling past the windows to blast Japs on the other side of the Pasig River.

What little Japanese Signal equipment that remained was, for the most part, inferior to American products. The fact was, though, that the enemy had brought very little into the Philippines. As with every other type of equipment, not excluding ordnance, the Imperial Forces' supply had been incredibly parasitical.

Most of their equipment was American materiel captured in the early days of the war. Natives reported the Japs had expressed a frank preference for American products.

Their field wire, haphazardly looped over bushes and connected to improvised pieces of seized commercial equipment, was the butt of civilian jokes.

The Santa Mesa Estate was chosen for a permanent receiver station, manual and teletype.

The Signal Center was moved into a three-story downtown building on 12 February, with the courier center on the ground floor, code room on the second floor and VHF carrier terminals, wire and radio teletypes and a TC-2 switchboard (known as Jockey Advance), on the third floor.

The condition of the stricken city, without municipal water, light, power or transportation, its streets battered and choked with rubble and tumbled buildings, precluded movement of General MacArthur's headquarters until 5 March. Had the movement occurred at the earliest possible date after the entrance into Manila, communications would have been ready. As it was, the early Signal installation served its purpose as an "Advance Advance GHQ". It was the only GHQ installation in the city, and staff officers, dividing their time between San Miguel and the scene of operations, utilized it as a headquarters and made good use of its communications facilities.

The unprecedented and unexpected rapidity of the movement from Lingayen to Manila was the core of the Signal Problem. It was a race to keep up with the advance.

Two hours after the 37th Division CP had opened at Paniqui, the Signal Company was ordered to install new CP communications at Tarlac. The men worked all night getting the lines into Tarlac, and as the Commanding General stepped from his jeep there the next morning, he announced they were moving to Concepcion that afternoon. Switchboards were left in operation at all three places.

At Concepcion, the company got a chance to catch its breath for a day and a half. It was the first time since the landing that the personnel had a night's sleep of more than three hours. But the race wasn't over.

Wire teams left Malolos at 0400 one morning to string wire to the next CP at Marilao, 13 miles away. The Marilao installation was in by 2000. Two and a half hours later, they received a phone call ordering them to go on to the brewery on the outskirts of Manila. By then there were only three wire teams, two telephone men, two message center clerks and one messenger left to open the new CP.

To get through to the brewery, the Signalmen had to cross a river in their one-and-a-half-ton truck over the ties of a railroad trestle. Then a sergeant stripped off his clothes and swam the 400-foot river to pull six circuits across.

The Division Signal Officer went on ahead to the brewery, while the wire teams were stringing. After he reached there, one of the wire men came up to make a breathless request for more men. He was reluctant to tell how they were to be used, though. The DSO finally learned from him that he wanted the reinforcements to fight a body of 70 to 90 Japs that had come in behind them.

The Signal Officer told him the wire men had a big enough job getting the wire in without stopping to fight Japs, and sent him back to his team. Then the DSO gathered up all the soldiers he could find---the two switchboard operators, the two message center clerks, the messenger, and five others------and sent them out with a captain to rout the Japs before they could disrupt the newly laid communications.

A few hours later, the detail returned, reporting they had routed the Japs in a hot fire fight without any losses, but that they had been unable to kill more than six of the enemy.

Despite the swift advance, the 37th Signal Company kept two wire circuits into all regiments all the way down the valley.

VHF telephone and telegraph was a salvation for Sixth Army. Army tactical wires were unable to keep up to Corps, but VHF circuits were quickly established. Every unit that had VHF was loud in its praise, and those that did not, considered themselves handicapped. Its great advantage was the speed

and simplicity of its installation, and its operation was almost flawless. One lesson quickly learned by units unpracticed in its use was that the training manuals' recommendations for high antennas had to be followed for best results.

The 37th Division Signal Officer called the GHQ VHF circuits "a Godsend". Always up with the advance, they were utilized for direct communication to Sixth Army supply bases in the rear.

Rear echelon installations were left disproportionately far behind. When the 37th Division CP opened at Malolos, its service units were still at Paniqui, 61 miles back. The 37th Signal Company had used the last of its three TC-4 switchboards at Marilao and had to replace it with two BD-72s.

Length of the lines forced the DSO to obtain authorization to use commercial facilities. But, although they were utilized in some places, the Signal Company was not equipped for open wire work and much of the commercial wire was so wrecked by the Japanese that the Company could lay field wire faster than it could rehabilitate the open wire.

One 37th Division line that ran from the 129th Infantry Regiment at Victoria to Division CP at San Isidro, 37 miles away, was field wire from Victoria to La Paz, open wire from there to Tarlac, field wire again for three miles south, open wire to Santo Domingo, then field wire from there to San Isidro.

Transportation was a dominant theme of Corps and Division difficulties ---vehicles for the movement of messengers and wire lines, of personnel and supplies, and means of getting the vehicles through the congested roads and across the many rivers with their blasted bridges. The problem was complicated by the miles of soggy rice paddies on either side of the roads.

The M-29-C, an amphibious half-ton cargo carrier with full track, known as a weasel, proved a valuable vehicle for wire and radio operations. Two were assigned to XIV Corps Headquarters' 88th Signal Battalion, and two to the 37th Division. SCR-193s rode very easily on them and they could make better time than the amtracks and get through fields and rice paddies where amtracks would bog down.

Another vehicle that was used with much success was the scooter, a single-seated, two-wheel, motor vehicle designed for airborne use. Three of these were employed for the first time in XIV Corps, one by Corps Headquarters and two by the 37th Division for messengers. They could get through when all other vehicles were stopped. One traffic jam built up for eight miles back, over a period of nearly 10 hours when improvised bridges kept breaking down, and the scooter messengers got through. They rode the vehicles across railroad trestles, and, in soft terrain, they could gun the motors while guiding them from afoot. Plans were started for a rig to hang one on the back of a jeep so that a messenger could abandon the jeep when necessary and continue by scooter.

XIV Corps Signal Officer also borrowed an L-4, Cub airplane, from Corps Artillery to fill an urgent need for a fast courier service. The Cub, able to land on clear roads or unfurrowed fields, was even valuable for comparatively short distances, with traffic so congested. Regular service was established to the 40th Division, but with the Signal Office having no authorized claim on the plane, service was frequently interrupted by other borrowers. Artillery supplied the pilot and maintenance for the Cub.

Corps and its units brought along double allowances of wire in the expectation of heavy artillery fire that might require extensive replacements. Although there was intensive artillery action after the entry into Manila, the forward movement itself was too fast to necessitate much artillery support. But that very speed of the movement more than justified the double allowance of wire.

Rough estimates of the expenditure of W-110 wire indicate the 37th Division laid 4,000 miles, the 40th 3,000, 1st Cavalry and 11th Airborne each 500, 6th Division 1,800, Corps Artillery 1,500, Corps Signal Battalion and other units, 3,500. The Cavalry and Airborne Divisions' expenditures were low because they were natural radio users. Altnough the 6th did not move as fast as the other elements, it used considerable wire because its Command Post advanced and strung its lines in long looping movements. This was necessitated by its flank-guarding operation, wherein it moved southward while fighting facing the east. The 40th, too, was slow-moving but fought over a wide area which consumed much wire. The 6th also used 900 miles of W-130.

Approximately 4,000 miles of W-110 was recovered and reused within the XIV Corps. Signal Officers variously blamed the swiftness of the movement and poor insulation of the wire for not reclaiming a greater percentage.

EE-89 repeaters were used for the first time within XIV Corps with highly satisfactory results. One field wire line 86 miles long worked efficiently with them.

Transportation of so much wire proved difficult. Only 45 miles of W-110 can be loaded on a two-and-a-half ton truck and no one-ton trailers were available. Engineers frequently made Signalmen unload their trucks before crossing temporary bridges.

Enemy interference with wire communications was sometimes clever, sometimes bungling. A few booby traps were found on tampered wires, but they were crude, such as a hand grenade in plain sight, bound to either side of a cut pair so that it would detonate when the wire was pulled. The repair team simply stood at a safe distance, jerked the wire and exploded the grenade harmlessly. Some of the opens attributed to the enemy were hard to detect, however, because they were either taped together after severing or made at the knot at the base of a roadside tree tie where the wire was carried overhead, causing the line to test clear from either side of the road. One night

some Filipinos were caught cutting wire. They were believed to be Makapili, a minority group of natives detested by the island population, who fought for the Japanese. In Batangas Province, grass fires burned wire lines, heavy winds wore insulation off at the ties, and isolated bands of Japs removed sections.

After the deadening effects of the jungle on radio, tactical units found radio reception excellent in the open country of Luzon. Sixth Army went ashore with four DUKW ducks equipped with HO-17s, plywood and canvas radio shelters known as "dog houses", two of them containing six receiving positions each and two of them with six transmitters each. The receivers were BC-779 Superpros and the transmitters TW-12s, remotely controlled through five-pair rubber cables from the receiver ducks.

XIV Corps brought extra SCR-399s. Two of them were mounted on ducks. Two 499s, mounted on half-tracks, also proved valuable.

The SCR-300 won high praise for its performance on Luzon. Sixth Army Signal Office reported that when it had sufficient elevation it proved much superior to the 610. Reconnaissance teams made much use of it for communications back to ships and beach head.

Although the 6th Division Signal Officer complied heartily with his staff's preference for telephone as a nearly exclusive means of communication, the rest of the XIV Corps favored teletype circuits. This required education, because of the staffs' telephone tendencies, but it was accomplished by inviting staff officers to talk back and forth informally on the teletypes, then providing them with the typed records. The 6th Signal Company, authorized only four wire construction teams, reorganized so as to allow eight - three at Command Post, one at rear echelon, one for Artillery and one for each of the three regiments. As soon as a lower echelon CP was set up, its Signal Company team began stringing wire back to Division. The 37th reorganized into seven teams, a five man team for each regiment and four seven-man teams for Division. It was able to accomplish all maintenance with a team of two trained men and a driver.

Army fitted out an HO-17 "dog house" as a message center, but although it served its purpose, it proved cramped in actual use.

A pigeon section of 500 birds, brought along by Army, was never used because the advance was too fast and other agencies too reliable.

Gurelling and dangerous as the operation proved for nearly all Signal troops, the wire construction units were subjected to the greatest ordeals.

During the advance, many of them averaged only two to four hours sleep out of each 24, and sometimes that was obtained only when they threw themselves down in a rice paddy at night with a couple of guerillas standing guard.

Lean, hard construction men of the 88th Signal Battalion lost an average of 10 pounds each the first ten days of the operation. A 6th Signal Company

team was ordered out of action and to bed when the Division Signal Officer discovered they had lost an average of 20 pounds per man.

Wire teams were frequently out ahead of the Infantry, under fire and fighting. To prevent interruption with their work, the 37th Signal Officer obtained outside security from MPs and reconnaissance outfits to do the fighting for working Signal teams.

For an understanding of the combat zest of the Signal troops, a realization is necessary of the lust for vengeance that afflicted the American forces encountering the inhuman atrocities and wanton destruction in the ebb of the Greater East Asia Coprosperity Sphere. Through the dreary months in the South Pacific wildernesses, the phrase, "Wait til we get to Manila", had become almost a watchword. Manila was anticipated as a kind of Vahalla second only to home. When the Americans reached it, the city's imposing buildings, beautiful boulevards and finest homes were smoking ruins. The Japs not only wantonly pillaged Manila and towns leading to it, but on every hand the U.S. troops saw evidence of their sadistic brutality---massed bodies of slaughtered civilians, bayoneted women and children, tortured, starved corpses. No American wanted to see a single Jap escape.

A 37th Signal Company private who went AWOL to the perimeter, complained, on being brought back, because Signalmen were restricted from leaving their jobs to fight Japs. At his own request, he was transferred to the Infantry. A few days later he was killed in combat.

Duty alone accounted for many instances of Signal Corps heroism. There was the time an advance Signal team moved into Bamban, in anticipation of establishment of Corps Headquarters there, scheduled for the next day. The Infantry was off to either side, engaging the enemy, and the team's front was exposed and unprotected. They obtained a .50 calibre machine gun from a Signal Corps truck, dug in and began installation of a TC-4. That night the TC-4 was in, ready for the arrival of Corps, but early the next morning the Japs had the place under artillery fire.

Shells screeched across their position. One struck four feet from the Lieutenant-In-Charge and clanked harmlessly on the pavement, a dud. But the Signalmen remained at their posts until officers arrived and decided the place was too hot for establishment of a headquarters.

Three casualties in the 88th Signal Battalion occurred when the 88th established a Corps Signal Center in the Jockey Club in Manila. On 11 February 1945, the Japs began shelling the place. At 0715, a shell, believed to be a Jap 77, landed on the race track. At 0745 another hit 50 yards from the switchboard, wounding Pfc. William W. Wilson on duty there. At 1100 another struck in the midst of the personnel of a Military Police Battalion using one end of the same club house, and killed several.

The Signal Center Officer decided the place was becoming untenable and messaged headquarters. He was told to patch the cords through for continued communications of principal headquarters, and evacuate. After the personnel

withdrew, the shelling knocked out a terminal, interrupting several important trunk circuits.

Four or five of the men returned to make repairs. The Jap bombardment had increased. Fragments from one shell struck Sgt. Thomas J. Musvkiewicz, Jr., attached to the signal center. He lay in an exposed position, and T/4 Richard S. Girard ran to his aid. Just then another shell struck the roof of the club house, its shrapnel wounding Girard in the left leg and left shoulder and again wounding Sgt. Musvkiewicz, who died that night in the hospital. VHF on the roof of the building was knocked out by the bombardment and the truck containing the carrier bays was pierced by shrapnel.

The Corps Signal Officer, investigating the shelling and finding the switchboard unattended, personally took over its operation.

A sergeant of the 88th who underwent the bombardment, later remarked, "I wanted to get the hell out of there, but how could I? I couldn't leave the Colonel there operating the board with all that stuff flying around."

The 37th Division Signal Officer, and a small party of Signalmen, penetrated 10 miles into the Jap lines to set up radio communications for a guerilla unit. After a banquet given them by the guerillas, who had not seen any invading Americans before, they drove back to American lines. Unknown to them, their jeep was pursued by a Japanese scout car. At the perimeter they let out an Infantryman they had taken along for additional fire power, and went on. The Infantryman was standing in the road when the Jap car approached. He challenged it and was shot dead. So were the Japs in the car---there were other Americans close by.

Shortly after the entry into Manila, a 37th Division switchboard in Malacañan Palace came under fire. A truck and the DSO's jeep were destroyed.

Again, when the Infantry made its rubber boat assault across the Pasig River in Manila, 37th Signal Company men came under fire as they began running wire across the destroyed Jones Bridge 20 minutes after the launching of the attack.

Sixth Army line construction details and 40th Signal Company reported they had killed some Japs, trouble crews especially having frequent contacts with the enemy.

The 6th Signal Company had perhaps more than its share of combat experiences, but the incidents that befell it were typical of other Signal outfits.

On two notable occasions, wire teams from the 6th found themselves out ahead of the Infantry. On 19 January, twelve linemen, headed by a Staff Sergeant, set out from the command post at Catablan to lay wire to a proposed Division CP at Villasis. Coming to a destroyed bridge, they reconnoitered to a ford, got their truck across, then drove back along the opposite bank to string their wires over the wrecked bridge.

When they reached the bridge, they saw their Infantry regiment back on the side they had left, exchanging fire with the Japs. The enemy was deployed along both banks of the river. By climbing the twisted girders of the bridge, the linemen commanded a view of the enemy and employed themselves in yelling directions to the Infantry. Their own fire killed one of the enemy.

After that, two guerillas were assigned to each wire team. Many of the Signal units used guerillas to great advantage. Those with the 6th would always precede their teams into danger spots.

On 8 February, a team was ordered to string wires to a proposed Division CP at Bongabon. When they reached there, the Technical Sergeant in charge phoned back to the Division Signal Officer at Bicos to inquire where the Infantry was.

"Isn't the Infantry there?" the DSO asked.

"Hell, no, sir, they haven't reached here yet. We're the first Americans in and the townspeople are preparing a feast for us."

"Then why did you go on, if the Infantry wasn't there?"

"Well sir, the only orders were to string the wire to Bongabon. Nothing was said about the Infantry."

During the fighting in Manila, a Signal depot was established in a railroad station at Malinta along the main highway, isolated from combat troops. Large parties of Japs, fleeing Manila, were continually infiltrating along the road. The depot personnel consisted of 26 enlisted men under a warrant officer junior grade. They reinforced themselves with four guerillas and oiled up their Thompson sub-machine guns and carbines. Usually, Filipinos who spotted the Japanese would run in with the first warnings of the enemy's approach. For four days, the depot detachment went out to meet approaching Japs, killing 14 on 23 February, eight on 24 February, two on the 25th and two on the 26th, 26 in all without a single American casualty.

Cases of outstanding devotion to duty were manifested in virtually every specialty of the Signal Corps. Two 6th Division messengers, both Pfcs, were dispatched in a jeep from rear echelon at Bocaue to the command post in a monastery north of Novaliches the night of 27 February. They carried important orders from XIV Corps. On the road they encountered a reconnaissance patrol that warned them there was a body of Japs in the vicinity of "Hot Corners", a road junction ahead commanded by the Jap guns, and advised them to turn back. Disregarding the warning, the messengers turned out the jeep lights and sped through, delivering the orders on time.

Then they returned over the same route, rejoining the recon outpost in the midst of an attack by a 20-man Japanese patrol. They hopped from their jeep and advanced to reinforce the outpost with their tommy guns chattering. The Japs were repulsed, leaving eight of their patrol dead, and the two messengers were recommended for the Bronze Star by the Division Adjutant General.

One of the severest tests of communications facilities, especially wire, in the whole Luzon Campaign, came in the bloody slaughter known as the Battle of Munoz.

The American forces were trying to gain the town of Munoz, firmly held by the Japs. After preliminary skirmishes on the outskirts of the town, the enemy came out in a wild charge on 7 February at 0410.

Into the charge they threw all they had---70 tanks and 600 men. The Americans, well dug in, started firing everything that would shoot, and in every direction, because the impact of the enemy spearhead had given it extensive dispersal among our own forces. The Artillery, its guns pointing all over the compass, loaded unfused ammunition and fired calibres up to 155 point blank. The unfused shells were little more than pointed cannon balls, but when they struck a tank, destruction was almost total. The armor burst into murderous shrapnel for the occupants, and turrets were flying off all over the area. When a shell missed or went through a tank, it skipped harmlessly along the ground over the heads of the entrenched Americans. One Infantry sergeant accounted for two tanks single-handed by running up to them and planting grenades near their gasoline.

By 0700, two hours and 50 minutes later, our troops had destroyed 70 tanks and killed 600 Japanese.

Throughout the fierce battle, regimental CPs were in constant communication with G-3. Every agency of Signal communication had functioned without interruption, and wire channels stayed in despite tanks and heavy and light arms fire that churned up the entire scene of flaming annihilation.

6th Division Signalmen flashed the first news of the liberation of the prisoners of Cabanatuan. The First Regiment was given the mission of securing the road from Cabanatuan for the withdrawal of the Rangers and their 510 liberated prisoners of the Japanese. It neutralized enemy opposition to within eight miles of the objective, although the Rangers had expected to have to trek 20 miles before meeting their support.

The Division Signal Officer was with the furthest advance elements when the Rangers and former prisoners appeared, the litter cases in a long convoy of commandeered carabao carts. He radioed the safe arrival to Regimental CP, where it was telephoned to Division and teletyped on.

Considering the number of its contacts with the enemy, Signal Corps casualties were remarkably low.

In the historic recapture of Corregidor, two young radio officers, first lieutenants of the 592nd Joint Assault Signal Company, played an integral part. They made the first parachute jump of their lives with the 503rd Parachute Infantry Regiment on "The Rock".

Their mission was one of their own creating. As S-2 and S-3 of the 592nd JASCO, they gained knowledge of a plan for retaking the island fortress and argued their commanding officer into permission to approach the 503rd

staff with an idea of substituting for the Naval officers who would ordinarily be expected to accomplish naval gunfire liaison on Corregidor.

The 503rd staff was dubious of their proposal because of the risk involved with inexperienced jumpers for such work. As one of them put it, "They thought it was just a hare-brained kid idea, but I pointed out to them that I have a wife and baby back in the states and convinced them our plans sprung from mature judgement and that we could be of real value to the assault."

The attacking force had destroyer support throughout the operation and the Lieutenants promised to insure communications between the assault force and the Naval support, directing fire to wherever it was needed.

They dropped on the island at 0830 of 16 February, under heavy fire, and both of them scrambled to their feet unhurt, although some veteran parachutists were injured in the rough jump.

They retrieved the two SCR-284s that had been dropped for them in separate chutes, carried them to a battered building that seemed suitable for their operations, and set up their radios, stopping only to rescue a parachutist with two broken legs, whom they lowered from a rooftop by ropes.

The air liaison officer on the mission was injured in the jump and the Signal officers took over the work of directing air support, too.

They kept the 284s operating 24 hours a day through every condition of bombardment, light arms fire and the tremendous explosions of arsenals set off by suicidal Japs. At night they could use no lights, but they maintained radio contact even during the fiercest banzai attack on the command post where they were situated, obtaining star cluster shells from a destroyer to illuminate the scene for the American defenders.

Both of them remained unscathed until near the end of their mission when a can of ration cheese that one was cooking exploded in his face from the heat, nearly costing him his eyesight. Evacuated to a mainland hospital, he fully recovered.

"They kept the 284s operating 24 hours a day through every condition of bombardment, light arms fire and the tremendous explosions of arsenals set off by suicidal Japs".

One of the 592nd Joint Assault Signal Company officers directs gun fire on Corregidor.

U.S. Army Signal Corps Photo


NAVY FIRE SECT

PRISONERS OF WAR

The garrison of doomed Corregidor was marched off to Japanese prison camps with the hauling down of the American flag there on 6 May 1942.

But behind the barbed wire stockades, Signalmen of that garrison carried on with the mission of the Corps---to get the message through, to make a pictorial record for the Army.

The incidents set forth here are given not merely for the light they may shed on the experiences of two typical Signal Corps prisoners of war, but for what technical interest may be contained in the accomplishment of their unassigned Signal missions under extraordinary difficulties.

When the 6th Ranger Battalion shot the lock off the gate of Cabanatuan and swiftly exterminated the Japanese guards, there were three officers and several enlisted men from the Signal Corps among the American prisoners they freed.

This chapter is concerned with the activities of two of the officers, a major and a first lieutenant, each of whom refused to let imprisonment interfere with the practice of his Signal Corps specialty.

The major was a photographic officer, the lieutenant a radio officer. The same Chief Signal Officer who directed the re-establishment of communications when General MacArthur returned to the Philippines, had made the Major his Executive Officer on Bataan during the fiercely fought withdrawal down the Peninsula. In that capacity, desperately struggling to keep the message channels open through the delaying action, the Major had little time, and even less equipment, for photography.

However, just before the fall of Corregidor, he managed to send 1800 priceless negatives, taken on Bataan and Corregidor from December to April 1942, out through the Japanese lines with an American Air Corps pilot. They were addressed to the Chief Signal Officer of General MacArthur's staff in Melbourne, Australia, but they never reached their destination. The fate of these negatives was one of the first questions the Officer asked his CSigO when they met after his liberation. No trace of them has been found. A handful of the Bataan and Corregidor pictures he retained. He hid them successfully throughout his imprisonment and brought them out with him when he was freed.

Before the Chief Signal Officer left the Philippines in 1942, he ordered his Executive back to Corregidor from Bataan.

"That order saved my life," said the Major, who had been on the retired list before the war. "I doubt if I would have survived the Death March of the prisoners of Bataan."

The Radio Officer received his commission two hours before the surrender of Corregidor. A former ham operator in the United States (his call sign was

W1DXZ), and a radio technician in Manila before the war, he went to Corregidor during the Japanese invasion to offer his services to the Army. His commission was held up because the Medical Officers on The Rock were so busy treating the wounded they couldn't give him the required physical examination.

But, as a civilian, he set up the one-kilowatt RCA voice station on Corregidor that became the famous Voice of Freedom.

When word of the impending surrender circulated around The Rock, he redoubled his efforts to obtain the commission, "because none of us could find out the status of civilian prisoners even under the rules of civilized warfare, let alone under the Japanese."

He finally obtained an authorized signature to a message to the War Department giving him a commission as a first lieutenant, but he was told it was useless, that no such traffic could get through on the radio. He knew better. The "roger" from Honolulu on that message sounded in phones clamped to his own head. It was one of the last messages sent.

The Major carried two musette bags with him when he surrendered. In one of them was a 2¼ x 2¼ Ciro-flex camera, a Wollensak product designed like the Rolleiflex, six rolls of size 120 film, and the Bataan and Corregidor pictures he had retained.

The camera was smuggled into prison by what the Major described as "an enlarged version of the old shell game."

"After the Japs had inspected my first musette bag," he explained, "I switched them and gave them back the same one they had already inspected instead of the one with the camera."

By the workings of an excellent prison grapevine, the Major always had ample warning of the Japs' showdown inspections, and would put the camera and film in a tin can to bury with his other valuables. He even hid his gold-rimmed glasses, because the Japs would take any kind of jewelry or precious metal. A friend of his was instructed, in case of a surprise inspection during the day, to throw the camera into the window of the prison library, where the Major was employed, so that no one else would be blamed for its possession.

The film had a 1942 expiration date and the Officer feared that in the tropical climate of the prison it would deteriorate hopelessly unless processed as soon as possible. So he arranged to sneak into the X-ray laboratory of the prison hospital at night where he developed each roll as it was exposed. He was never able to obtain paper to make prints.

Most of the pictures illustrated the routine of prison life among the Americans. The Major had only one close call with the camera. That was when he was taking pictures of the prisoners' 1943 Christmas services.

Another prisoner whispered to him:

"Don't look now, but you have a colleague."

Almost alongside him stood an official Japanese Army photographer taking pictures of the same services. Fortunately, the Jap was so engrossed in his finder that he didn't notice his American competitor.

During his imprisonment, the Major took all but the last two pictures of his last roll of film. These he saved against the possibility of deliverance, although when it came he never got to use them.

The Lieutenant with the last minute commission brought the prisoners of Cabanatuan messages on the steady progress of General MacArthur back to the Philippines and on the American version of the war throughout the world. The Americans in that prison knew more about the true state of the war than their captors. When our forces invaded the Philippines, they knew it first, and when the landing was made on Luzon they knew that, too, and were kept abreast of the swift advance on Manila that heralded their liberation.

It was accomplished by a one-tube regenerative radio receiver set, ingeniously built into a GI canteen, a masterpeice of larceny and improvisation made entirely from stolen parts and scrap.

Neither the design nor original construction of this set was accomplished in Cabanatuan. It was brought into the prison by a first lieutenant of the Corps of Engineers, who was transferred to Cabanatuan after he had built it in another prison. It wasn't working at the time because its tube was burnt out, and the Engineer Lieutenant was transferred out again shortly afterward, but he left the set with the Signal Officer.

It was built into a canteen from which the side had been cut away so that it could be refitted when the set was not in use. To operate, however, the side had to be removed because the tube, in its socket, projected above the edges of the canteen. A compartment was built into the lower portion of the set to accommodate the tube when out of operation. Thus, unused, the closed canteen could be tucked back in its holder, which concealed the removable side. Only the earphones had to be secreted separately.

The set, in the canteen cover, was kept in plain view hanging on the Lieutenant's cartridge belt beside his bed. Inspecting Japanese officers looked right at it many times, and although the American held his breath each time, they never became suspicious.

The antenna was a rope clothes line with a Number 22 wire woven into it.

No replacement was available anywhere in the camp for the burned-out tube, a 12-SK-7. But an American sailor who had a prison job in one of the Jap shops was able to steal a 6-J-7 tube. The Signal Corps Officer rewired the entire set to accommodate it, using a cauterizing iron from the prison hospital for soldering.

To his own amazement, the set worked immediately, bringing in Saigon, Tokio, Australia, KGEI and KGEX at San Francisco, and, later, the new Voice of Freedom from Leyte. Reception was audible with the phones held six inches from the ears. KGEX came in strongest, and since the set had to be tuned with a screw driver, it was fixed on KGEX, a home made band spread condensor being used for finer tuning.

The radio was operated in the prison hospital. "A" power to light the filament was drawn from the storage batteries ordinarily used for the surgery light. "B" power was obtained from additional batteries kept in the hospital, though the voltage was far below ordinary requirements. Reception was obtained on six volts of "A" power and 20 volts of "B" power.

Four men were required for safe operation of the set, if its operation could be called safe at any time. One was a Quartermaster second lieutenant who assisted the Signal officer in reconstructing it and in reception. The other two were used as guards.

Every night after 1800, they would sneak into the hospital and set it up. The room in which they operated was right alongside the prison wall and they could see the guards passing back and forth through a window, although no one outside could see into the dark interior. They lashed a blackout shade to the surgery light in such a way that illumination was piped down to a tiny spot for writing when it grew dark.

KGEX had a couple of news programs on which the Signal Corps Officer took notes, then a newscast at dictation speed which he took verbatim.

One of the American radio guards was posted outside the building, another inside the door. The alrm procedure was well rehearsed. If a Japanese approached, the outside man would make a remark, any remark. The man at the door would then knock a pan off a table. That was the signal to dismantle. The two lieutenants practiced until, by making each movement count, they could pull out the earphones plug, hide the phones in a pile of linen, take the tube out of the socket and tuck it into its compartment, close the canteen and put it in its case and arrange the antenna back as a clothes line, within three minutes. They knew that was too much time, but it was the best they could do.

Because they would have to be able to account for their presence in the hospital, they left the light on and they always brought books along so that they could say they had come there to read if the Nips entered. That was a punishable offense, of course, but nothing compared to what the penalty would have been for their real offense.

"The alarm was only sounded twice," the Signal Corps Lieutenant recalled. "But each time that pan hit the floor it sounded like the crash of doom to us. We broke into a sweat as soon as we heard it and we sweat more as we fumbled with the set. But on neither occasion did the Japs actually come in."

At first, the gleanings of the little radio were circulated by word of mouth. But when American planes began bombing Japanese installations around the prison, late in 1944, all the prisoners grew bolder. They knew about Leyte. They were sure Luzon would be invaded soon. MacArthur had as much as said so.

One day an American plane swooped low and dropped a note into the prison. The Japanese got it. An American Medical Corps major had the nerve to blandly ask the Japs if he could be of any service in translating it for them, but it didn't work.

After that, however, the prisoners delegated the Signal Corps Major to rig up a panel signal to the planes.

They selected as a panel ground a spot inside the prison that the Japs seldom visited. Not knowing the panel codes, the Major simply made a red cross out of bedsheets and sheets of stolen Japanese red paper, and a U.S. out of bedsheets alone.

On 7 January, 1945, new Japanese guards took over the prison. They were more lax than their predecessors, and the Signal Corps Lieutenant decided to publish a newspaper on information learned from his talking canteen. It was typed on large sheets of stolen Jap paper with a distribution of three copies and a circulation of about 500, representing virtually every prisoner in the camp. Two pieces of carbon were required for each extra copy on the oversized sheets.

One copy went to the American commanding officer of the prisoners, one was given to a Chaplain or someone making hospital rounds, so it could be read to each patient, and the third was posted behind a loose board in the wall of the library which was run by the Signal Corps Major. On the reverse side of the board was an official notice that everybody could appear to have been reading if the Japs came in and the board had to be turned back into place.

The content ran about 1,000 words daily and the paper was called THE QUANICLE, quan being a Tagolog word for almost anything, the nearest English equivalent of which is "thingamajig."

Thirtieth January, 1945, was much like any other day in the monotonous routine of the prison. It wasn't until after sunset that it became the greatest day in the life of every prisoner in Cabanatuan. None of them have anything but a vague series of impressions of the events that followed so rapidly, one upon another, from 1700 on.

One minute it was quiet and the next minute there was rifle and machine gun fire. It sounded like a battle somewhere outside the prison. It seemed close, too. Then guns were going off everywhere, inside and out. Somebody yelled, "Run for the gate!"

Several prisoners bolted for the nearest one. There were Japs there.

Somebody else yelled, "No, no, this gate down here!"

Most of them just stood, gaping, not knowing what to do.

Then there were strange soldiers in bucket-like helmets---not the flat tin hats of the Americans they had known---running among them. They were shouting, "Come on! Get out! Run for the gate! We're Americans! Run, for Christ's sake, we're here to rescue you!"

Several still stood there, gaping, immobilized. They were pushed and pulled into action. One prisoner was yanked off the toilet.

The Signal Corps Major grabbed his musette bag with his film and pictures, and ran out the gate. He didn't stop for the hidden camera. The Lieutenant abandoned his unneeded radio set and joined the now swift moving mob.

Behind them, as they moved along the Luzon roads, were 523 dead Japs and 12 wrecked enemy tanks. The tanks and most of the enemy had been wiped out when they came to reinforce the prison garrison. There were also 27 dead Americans and guerillas. Twenty-five miles ahead of them were the Japanese lines---they were that deep in enemy territory---and no one knew at what moment enemy reinforcements might strike again. The raid had been made by 121 picked men of the 6th Ranger Battalion and 286 guerillas.

Not counting our losses, there were 510 more now with the liberated prisoners. The whole body was moving at a forced march to get back to our lines. Those too ill to walk were put into waiting carabao carts.

In the dark ahead of him, the Major heard a profusion of profanity that he couldn't help admiring for its variety and tireless flow. It was coming from a very small soldier, lugging a motion picture camera and bewailing the fact that it was too dark for pictures.

It wasn't until then that he realized he, too, had never gotten to use the two exposures he had so carefully hoarded against the great moment.

He introduced himself to the soldier who turned out to be a T/4 of Signal Corps Photographic Service, Photo Combat Unit F. The soldier brought up his Unit officer as they waled along and the Major indulged himself the rest of the journey in motion picture talk with someone who spoke the same language, for the first time in three years.

Whey they had gone eight miles, everyone was relieved to find the point of the 6th Division that had penetrated the Jap lines to protect them. The Rangers had expected to be on their own for 20 miles. The prisoners were piled into trucks to be sped to safety.

They had gone less than a mile when their convoy was stopped. Apprehensive questions were on everybody's lips. Then someone up front passed back the word, "Its a couple of generals come out here in a jeep!" Someone cried to the Major, "Hey, it's your old commanding general, the Signal Officer. Go on over and say hello to him."

The Major, overwrought, was afraid he couldn't control himself. He held back until his comrades pushed him forward.

There, on the road, the Chief Signal Officer and the Executive Officer who had handled the pitifully persistent communications for him on Bataan, met again for the first time since they parted in one of the darkest hours in modern American history.

With the Chief Signal Officer was the Chief of Staff of United States Army Forces in the Far East. They were still deep in enemy territory, but the CSigO and his former Executive just stood there for a moment, pounding each other on the back and not saying anything, while tears mocked the Major's efforts to hold them back.

A search of Cabanatuan, when it came into American possession, disclosed that the home made radio and the camera, with virtually everything else of value in the prison, had been carted away by looters.

In Manila, the Signal Lieutenant saw his wife again for the first time in 38 months. She had been interned at Santo Tomas, and he knew where to look for her because they had been in sporadic communication through an underground courier service, the carrying out of which had cost the lives of several Filipinos during the occupation.

Together, they returned to the United States.

The Major was one of the few released prisoners to remain. He was promoted to Lieutenant Colonel and made Theater Photographic Officer.

GLOSSARY

AMR-100 - Australian superheterodyne receiver covering 2 to 20 megacycles.

AMTRACKS - Amphibious landing craft, full tracked for personnel, cargo and rockets.

AN/FGC-1 - Radio teletype terminal equipment for use with AN/FRR-3 as radio teletype receiving station.

AN/FRR-3 - Diversity receiver with frequency coverage of 2.4 to 23 megacycles for radio teletype.

AN/TRC-1 - Radio link, four-channel system consisting of one VHF transmitter and one VHF receiver as a terminal station.

AN/TRC-3 - Radio link, four-channel system, consisting of two VHF transmitters and two VHF receivers used as relay station.

AT-20 - Australian-built 500-watt transmitter for CW at 2 to 20 megacycles, using AC power.

BARRIO - Philippine village.

BC-339 - A 1,000 watt CW and Radio-teletype transmitter with a frequency range of 4 to 26.5 megacycles, requiring 220 volts three-phase 60 cycle power.

BC-342 - Superheterodyne communications receiver covering 1.5 to 18 megacycles, requiring a power supply of 110 volts AC.

BC-610 - 400-watt transmitter covering range of 2 to 18 megacycles. An Army adaptation of the Hallicrafter HT-4, it will transmit CW, voice or modulated CW.

BC-779 - Hammarlund Superpro superheterodyne receiver covering 0.1 to 0.4 and 2.5 to 20 megacycles, using either AC of DC sources.

BD-71 - Field switchboard with 6 drops or circuits.

BD-72 - Field switchboard with 12 drops or circuits.

BD-91 - Portable switchboard with two local battery circuits and 4 telering circuits.

BOGIES	-	Wheels that support and propel treads on a tracked vehicle.
BOHME	-	Automatic high speed CW as high as 500 words per minute using perforated tape.
CF-1	-	Part of carrier system enabling four voice channels to be carried on one circuit.
CF-2	-	Part of carrier system enabling four teletype circuits to be carried on one voice channel.
CLASS II SUPPLY	-	Supplies consumed at uniform rate and coming under T/O & E, Table of Basic Allowances or TE-21, uniform allowances.
CLASS IV SUPPLY	-	Theatre reserve supplies issued for a specific mission.
CLEAR TEXT	-	Plain language not cryptographed.
CP	-	Command post.
CQ	-	Obsolete radio procedure signal for calling any station listening.
CW	-	Continuous wave or code radio telegraph.
DOUBLE DOUBLET	-	A two-wire receiving antenna used to cover wide range of operating frequency and diminish fading.
DIVERSITY DOUBLE DOUBLET	-	Two doublet antennas separated by about 1,000 yards, connected to two receivers.
DOUBLE TRANSPOSITION	-	A non-mechanical cipher system.
DSO	-	Division Signal Officer
DUKW	-	Amphibious two-and-a-half ton truck.
DUPLEX	-	Transmission on one radio frequency and reception on another to confuse enemy intercept.
EE-8	-	Field telephone. Followed by A, it has leather case. Followed by B, it has canvas case.
EE-89	-	Telephone repeater to amplify sound on a long wire.
EE-97	-	Portable field teletype printer.
EE-101	-	Ringer equipment for use with CF-1 carrier bay.

FIVE-PAIR RUBBER CABLE - A cable containing 10 copper wires in pairs, insulated by rubber.

FOX BROADCASTS - Radio messages to which no acknowledgements are to be made.

FP-47 - Name of press transmission ship used by Signal Corps, Southwest Pacific Area. Initials stand for "Freight Passenger."

GA - Obsolete radio procedure signal for GO AHEAD.

GONEOMETRICS - The practice of locating radio stations by direction finding and resection.

GUARD - To monitor a frequency, copying all transmissions.

HO-17 - Wood and canvas shelter, usually used to house SCR-399 on a two-and-a-half-ton truck.

INTERCEPT - Monitoring friendly or enemy broadcasts for intelligence purposes.

JACK - Switchboard terminal in which line plug is inserted.

JASCO - Joint Assault Signal Company.

K-43 TRUCK - One-and-a-half-ton Signal Corps designed pole line construction truck.

LCI - Landing Craft Infantry.

LCM - Landing Craft Mechanized.

LCV - Landing Craft Vehicles.

LCVP - Landing Craft, Vehicles, Personnel.

LST - Landing Ship Tanks.

M-1 OPERATION - Designation given the Lingayen landings.

M-29-C - A full tracked half-ton cargo carrier, used over swamps and quiet waters.

M-94 - Obsolete Army mechanical cipher device.

NEI-3 - A Netherlands East Indies field radio set with 30 watt output and bicycle-type generator.

NET - Two or more stations in communication with each other.

OPEN - An open circuit caused by broken wire.

P. A. - Philippine Army.

PA-5 - Public address system with record player, 30-watt audio frequency amplifier, two directional speakers and two microphones, operating from either six volts DC or 110 volts AC.

PCE(R) - Small warship. Initials stand for Patrol Craft Escort (Rescue).

PE-75 - Two-and-one-half kilowatt gasoline generator.

PE-85 - 50-kilowatt diesel generator.

PE-95 - A five or 10-kilowatt gasoline generator.

PRECEDENCE DESIGNATIONS - Priority order of handling messages.

PT BOATS - Patrol Torpedo Boats.

Q SIGNALS - Brevity code in present Combined Communications Board Procedure.

RBG - Navy communications receiver for ship to shore, with a frequency range of 0.6 to 30 megacycles.

RBM - Navy port unit receiver with a low frequency range of 0.1 to 0.6 and high frequency of 0.6 to 30 megacycles.

RCA - Radio Corporation of America.

REGENERATIVE RECEIVER - A radio frequency amplifier and detector in which part of the rectified radio frequency energy is fed back into the input giving higher gain.

RHOMBIC - A large uni-directional or bi-directional fixed station antenna. It covers approximately eight acres and gives longer range transmission by high gain and strengthened sky wave.

R. I. - Radio Intelligence.

SCOOTER - A small two-wheeled vehicle designed for air-transport for ground messenger use.

SCR-188 - Amplitude modulated field radio set for both CW and voice transmission at 75 watts output with a frequency range for the transmitter of 1.5 to 12.5 megacycles and the receiver of 0.4 to 13 megacycles, powered by storage batteries and vibrator pack.

SCR-193 - Vehicular, amplitude modulated, 75 watt, CW and voice radio set with transmitting frequency of 1.5 to 4.5 megacycles and receiving range of 1.5 to 18 megacycles.

SCR-206 - A direction finding receiver with self-contained battery power supply and directional receiving antenna with a range of 0.4 to 20 megacycles.

SCR-284 - Amplitude modulated field radio set for both CW and voice transmission at 20 watts output in a frequency range of 3.8 to 5.8 megacycles, powered by a hand-cranked generator.

SCR-288 - Amplitude modulated field radio set for either CW or voice transmission, with four watts power output at a transmitting frequency range of 3.5 to 6.3 megacycles and receiving range of 2.3 to 6.5 megacycles, powered by a hand generator.

SCR-300 - Walkie-talkie, frequency modulated transceiver with a frequency range of 40 to 48 megacycles and output of one-half watt, powered by self-contained dry cells.

SCR-399 - Mobile, 400-watt radio set mounted in HO-17 on two and one-half ton truck. Voice and CW transmission 2 to 18 megacycles with a receiver range of 1.5 to 18 megacycles. Required power supplies are 110 volts AC and 12 volts DC.

SCR-499 - Mobile, 400-watt radio set mounted in a half track. Voice and CW transmission 2 to 18 megacycles. Required power supplies are 110 volts AC and 12 volts DC.

SCR-610 - Small portable or vehicular frequency modulated voice radio set with frequency range of 27 to 38.9 megacycles, output of two watts, using either dry cell pack or vehicle battery and vibrator pack.

S-DAY - Landing date, or D-Day for Lingayen operation.

SIGABA - Enciphering machine.

SIGTOT - Teletype conference set, sometimes called privacy-equipment.

SIMPLEX - Transmission and reception on same radio frequency.

SIX-BY-SIX - Six-wheeled army vehicle with driving power in all six wheels.

6-J-7 - A triple grid detector and amplifier radio tube normally employed as a radio frequency, intermediate frequency amplifier or first detector.

SOI - Signal Operations Instructions.

SPIRAL-FOUR - Four copper stranded wires encased in rubber and shielded.

SPIRAL-FOUR SYSTEM - Carrier bays allowing three voice and four teletype circuits to be transmitted on one circuit, complete with cable and accessories.

SSTR-1 - Three-watt portable radio transceiver with a top frequency of seven megacycles, contained in suitcase and designed for espionage work.

SSTR-2 - Portable radio transceiver with transmitter frequency top of 1,000 kilocycles, used to relay messages from SSTR-1. Powered by power pack or 110-volt, 400-watt generator with four-cycle, single cylinder gasoline engine.

SUPERPRO - Superheterodyne receiver designed by Hammarlund.

SWPA - Southwest Pacific Area.

TBW - Navy semi-portable 125-watt CW and voice transmitter with frequency range of 0.3 to 2 and 3 to 18 megacycles.

TCK - Navy 400-watt CW ship-to-shore transmitter with frequency range of 2 to 18 megacycles.

TCS - Navy 40-watt CW semi-portable ship-to-shore and vehicular transmitter with frequency range of 0.3 to 0.6 and 2 to 18 megacycles.

TC-2 - Transportable central office telephone exchange used for Corps and Army, with either two or three positions.

TC-4 - Field telephone switchboard, local battery with 40 circuits, and four trunk circuits.

TC-10 - Telephone Central Office equipment with three to six positions for large headquarters.

10-PAIR RUBBER CABLE - 20 strands of copper wire in pairs, insulated by rubber.

25-PAIR CABLE - 50 copper wires in pairs, insulated by rubber and enclosed in a lead jacket.

THREE MINUS	-	Broadcast intelligibility rating of fairly good.
T/O & E	-	Table of Organization and Equipment.
TP-6	-	Desk phone, handset type.
TRANSCEIVER	-	Transmitter and receiver combined in same case and using common radio circuits.
TRICK CHIEF	-	Head of a shift.
12-SK-7	-	A remote cut-off, high gain, pentode radio tube normally employed as a radio frequency or intermediate frequency amplifier.
V ANTENNA	-	Directional half rhombic designed to increase signal strength.
VHF	-	Very High Frequency.
W-104	-	Open or uninsulated copper wire for long pole line construction.
W-110	-	Field wire with 7 strands of steel and copper insulated by rubber and covered by composition.
W-130	-	Light weight assault wire with copper strands and rubber covering.
W-143	-	Heavy 14-guage stranded copper wire with twin conductors insulated by wire and covered by composition.
Z SIGNALS	-	Obsolete brevity code.